WILKES UNIVERSITY ACADEMIC CALENDAR
2007 - 2008

SUMMER 2007
PRE-SESSION
Classes Commence Monday, May 21, 2007 8:00 a.m.
Classes End Friday, June 8, 2007 12:00 noon
(Including Final Examinations)

FIRST DAY SESSION
Classes Commence Monday, June 11, 2007 8:00 a.m.
Classes End Friday, July 13, 2007 12:00 noon
(Including Final Examinations)

NINE-WEEK EVENING SESSION
Classes Commence Monday, June 11, 2007 6:00 p.m.
Classes End Tuesday, August 14, 2007 10:00 p.m.
( Including Final Examinations)

SECOND DAY SESSION
Classes Commence Monday, July 16, 2007 8:00 a.m.
Classes End Friday, August 17, 2007 12:00 noon
( Including Final Examinations)

FALL SEMESTER 2007
Classes Commence Monday, August 27, 2007 8:00 a.m.
Labor Day Recess Begins Friday, August 31, 2007 5:00 p.m.
Classes Resume Tuesday, September 4, 2007 8:00 a.m.
Summer Commencement Sunday, September 9, 2007 2:00 p.m.
Fall Recess Begins Wednesday, October 10, 2007 10:00 p.m.
Classes Resume Monday, October 15, 2007 8:00 a.m.
Thanksgiving Recess Begins Tuesday, November 20, 2007 10:00 p.m.

Special Note
Classes Resume Tuesday, November 20, 2007 8:00 a.m.
Classes End Monday, December 10, 2007 5:00 p.m.

Special Note
Final Examinations Begin Tuesday, December 11, 2007 8:00 a.m.
Final Examinations End Wednesday, December 19, 2007 4:30 p.m.

INTERSESSION 2008
Wednesday, January 2, 2008 to Friday, January 11, 2008

SPRING SEMESTER 2008
Classes Commence Monday, January 14, 2008 8:00 a.m.
Spring Recess Begins Friday, February 29, 2008 5:00 p.m.
Classes Resume Monday, March 10, 2008 8:00 a.m.
Holiday Recess Begins Wednesday, March 19, 2008 10:00 p.m.
Classes Resume Tuesday, March 25, 2008 8:00 a.m.

Special Note
Classes End Wednesday, April 30, 2008 5:00 p.m.

Special Note
Final Examinations Begin Friday, May 2, 2008 8:00 a.m.
Final Examinations End Saturday, May 10, 2008 4:30 p.m.
Commencement Saturday, May 17, 2008 1:00 p.m.
2007 - 2008

GRADUATE AND PROFESSIONAL STUDIES BULLETIN

Office of Graduate Studies & Continued Learning
84 W. South Street
Wilkes-Barre, Pennsylvania 18766
(570) 408-4235
1-800-WILKES U, ext. 4235
(1-800-945-5378)
www.wilkes.edu

STATEMENT OF DISCLAIMER
The statements in this bulletin are for the purposes of information. The University reserves the right to change any provisions or requirements, including tuition and fees, any time within the student’s term of residence. No contract is created or implied. Students must fulfill all prevailing degree or program requirements.
STATEMENT OF NONDISCRIMINATION

Wilkes University does not discriminate on the grounds of race, color, national origin, sex, age, or disability in the administration of or admission to any of its educational programs, activities, or with respect to employment, in compliance with Title VII, Title IX, Section 504, ADA, and the Age Discrimination Act. It is the policy of Wilkes University that no person, on the basis of race, color, religion, national origin or affectional preference, or Vietnam-era veteran status, shall be discriminated against in employment, educational programs and activities, or admissions. Inquiries may be directed to the Dean of Student Affairs or the Affirmative Action Office (Ext. 4500).

The University complies with the Ethnic Intimidation Act of 1982 of the Commonwealth of Pennsylvania which provides additional penalties for the commission of illegal acts of intimidation when such actions are motivated by hatred of the victim’s race, color, religion or national origin.

FEDERAL AND STATE ACT COMPLIANCE

The Office of Public Safety at Wilkes University prepares and distributes the "For Your Safety" annual safety and security report. This document is prepared in compliance with Act 73 of 1988 of the Commonwealth of Pennsylvania and the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, 20 USC §1092(f). This report is available in hard copy format upon request, during normal business hours, at the Office of Public Safety, 148 South Main Street, UCOM Garage; the Office of Admissions, Chase Hall’s Reception Area; and the Office of Student Affairs, Conyngham Hall’s Reception Area. Additionally, an electronic copy of this report is available on the University website at: www.wilkes.edu/campuslife/safety/disclose.asp. In addition, daily logs and crime logs are available for review during normal business hours at the Office of Public Safety. Any questions regarding this report and the specific requirements of the Acts that govern its production can be addressed to Gerald C. Rebo, Manager, Office of Public Safety, ext. 4984.
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## GRADUATE AND PROFESSIONAL STUDIES

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OUR MISSION:
To educate our students for lifelong learning and success in a constantly evolving and multicultural world through a commitment to individualized attention, exceptional teaching, and academic excellence.

OUR VISION:
To be a nationally recognized independent university where intense personal engagement in exceptional academic and professional programs cultivates a lifelong commitment to learning, ethics, civic responsibility, and openness to cultural diversity.

OUR VALUES:
As a university community, we work together with understanding, respect and integrity, guided by these principles:
• Student success is our defining purpose
• Lifelong learning is our passion
• Mentorship is our guiding behavior
• Community engagement is our civic imperative

GRADUATE STUDIES AND CONTINUED LEARNING
Dean: Dr. Michael J. Speziale
William Jones, Director of Life-Long Learning
Kathleen Houlihan, Director, Graduate Enrollment Admissions
Erin Drew, Director of the Sovereign Center for Leadership and Management Development

GRADUATE STUDIES AS A COMPETITIVE ADVANTAGE
Today’s competitive work environment has seen a significant increase in the demand for advanced degrees, certificates and knowledge acquired through formalized continuing professional education. U.S. labor market studies indicate that many individuals will change the way they do business in their existing positions, due to rapid advancements in technology and the “flattening” of the world’s economy. In fact, today’s college graduates must make a commitment to be life-long learners to stay competitive in their respective fields. In addition, some professions, which at one time required a bachelor’s degree for an entry-level position, have raised the bar and are seeking individuals with advanced degrees.

Wilkes University is committed to providing high quality graduate programs to meet the professional educational needs of its students. The university offers a wide spectrum of programs. In addition to traditional classroom instruction, Wilkes University is responding to increased demand for jobsite education, (Graduate Education 36 sites) on-line delivery and low residency programs (Master’s in Creative Writing and Master’s in Fine Arts). As the dean of Graduate Studies and Continued Learning, it is my hope that students will view Wilkes University as their partner in meeting life-long learning goals.

In the 2006–2007 academic year, the university inaugurated the University Center on Main
The building has become a centerpiece for student services. The university has adopted a goal of providing students a centralized student processing area to bring various application, registration and financial services under one roof. In addition, the university has committed significant resources to the Graduate Studies and Continued Learning division to support students through the inquiry, application, registration and matriculation processes at Wilkes. Enhanced student services, outstanding faculty and a rigorous curriculum provide the formula that students can count on for meeting their professional growth needs.

**A CONTINUUM OF POST-BACCALAUREATE OFFERINGS**

Wilkes University has a rich tradition of responding to the changing educational needs of both workplace and students. Graduate programs were established in 1959 when the Board of Trustees authorized graduate study in the departments of chemistry and physics. The first master's degrees were conferred in 1965. The School of Pharmacy was established in 1995; the first Doctor of Pharmacy (Pharm D.) degrees were awarded in 2000. The university announced a Doctorate in Educational Leadership with majors in Educational Technology, K-12 Administration and Higher Education Administration in March of 2007. The first cohort for the Ed.D. was admitted for June of 2007. Most recently, the Pennsylvania Department of Education approved the Master's in Fine Arts (MFA) in Creative Writing – the terminal degree in this field. The MFA adds yet another dimension to the increasing portfolio of master's and terminal degrees.

Graduate and post-baccalaureate programs have historically been positioned to respond to the changing needs of our students and their respective professions. An examination of the offerings in this bulletin will reveal a diverse array of advanced study programs including a Doctoral degree in Educational Leadership, Master of Arts and Master of Fine Arts degrees in Creative Writing, Master of Science degrees in Education, Electrical Engineering, Engineering Operations and Strategy; Nursing, Mathematics and a Master of Business Administration. In addition, the continuum of offerings also includes a Post-Baccalaureate Certificate in BioInformatics, an R.N. to M.S.N. program for nurses, Post-Master's Certificates in Adult Psychiatric-Mental Health, Gerontological Nursing, Nursing Management and Nursing Education. The university also offers a Doctorate in Pharmacy. Most recently, Graduate Education added master's degrees in School Business Leadership (in cooperation with the PA Association of School Business Officials); Early Childhood Literacy, 21st Century Teaching and Learning (in partnership with Learning Sciences International). Graduate Education also initiated a Letter of Endorsement in Teacher Leadership and Instructional Coaching (in partnership with Learning Sciences International).

Graduate programs are designed to provide the opportunity for completion of advanced degrees in a reasonable amount of time that is individualized, based on the student's level of commitment. Continuous cycling of graduate courses allows a student to plan for continuous progress in his/her program of study. Many programs are designed with the working professional in mind and, with a growing number of low residency programs and classes offered in an on-line format, convenient access continues to expand. Students should
consult with their respective departments to determine program/course schedules and available delivery formats.

**THE CENTER FOR LIFE-LONG LEARNING**

*William Jones, Director*

The Center for Life-Long Learning is your partner as you consider and explore non-credit training, and graduate and post-baccalaureate options. Assistance is available to help guide you through the details and prerequisites of established programs at Wilkes University. In addition, we are committed to helping our local and regional community as it strives to search for the newest approaches, technologies and skills needed to build and sustain a thriving economy and a rich social and cultural environment.

**SOVEREIGN CENTER FOR LEADERSHIP AND MANAGEMENT DEVELOPMENT**

*Erin Drew, Director*

The Sovereign Center for Leadership and Management Development and the Center for Life-Long Learning have been established to help local, regional and national businesses to meet their strategic outcomes. Both the Sovereign Center and the Center for Life-Long Learning seek to provide relevant assistance by assessing the professional development needs of individual businesses and matching the training needs with the skills of highly qualified faculty members across a wide variety of disciplines.

Information regarding the services of both centers can be obtained by calling the office of Graduate Studies and Continued Learning at 800-WILKESU Ext. 4235.

**ACCREDITATION**

Wilkes University is an accredited member of the Middle States Association of Colleges and Schools and its graduate and professional programs are approved by the Department of Education of the Commonwealth of Pennsylvania. In addition to total program accreditation, certain special areas are recognized by professional organizations. The Master’s Degree in Business Administration (MBA) program is accredited by the Association of Collegiate Business Schools and Programs, and the graduate program leading to the Master of Science Degree with a major in Nursing is accredited by the Commission on Collegiate Nursing Education (CCNE). The American Council on Pharmaceutical Education (ACPE) has granted full accreditation to the Doctor of Pharmacy (Pharm. D.) program.

**STUDENT SERVICES CENTER**

Many of the functions or activities described in the following pages are performed by the Student Services Center (SSC) team located on the first floor of University Center on Main (UCOM). SSC was created to provide an integrated and centralized nexus point for the majority of student needs. While the SSC is staffed during regular university business hours, most of the services provided are also available online at www.wilkes.edu. The pri-
mary goals for SSC include exceptional service to students, the effective use of technology and the pursuit of ever-improving services to all constituencies. Those in need of assistance may reach the SSC staff at (570) 408-2000 or onestop@wilkes.edu. Some of the functions provided at SSC include:

- All financial aid functions
- All student account functions
- All registration functions
- All cashier functions
- Meal plans
- Work-study matters

**GRADUATE ADMISSION**

For admission to graduate studies an applicant must have received a baccalaureate degree from an accredited institution. Ordinarily, an entering student must have completed satisfactorily a minimum of course work in designated areas, the specific courses and amount of work depending upon the field of advanced study. In some cases, programs are designed for individuals who are seeking to change professions. For specific information, you should review the specific program of interest found in detailed sections of this bulletin.

Although no minimum undergraduate grade point average is a requirement for admission, it is expected that candidates for admission shall have maintained average or above-average performance during their undergraduate years and shall exhibit evidence of intellectual and temperamental fitness for graduate study. A student whose background is judged to be deficient in any specific area of the proposed field of study or whose undergraduate grades are below standard may be asked to remedy the deficiency by taking one or more courses at the undergraduate level, without graduate credit.

**APPLICATION**

Those interested in graduate programs offered at Wilkes University may apply in person, via surface mail, or on-line at www.wilkes.edu/admission/application/default.asp. The Graduate Studies Office is located in the lower level of Breiseth Hall, Suite 002. You may contact the office to obtain the forms and information needed to proceed with the application process by calling 800-WILKESU Extension 4235.

All students, whether degree-seeking or not, must fill out an “Application for Graduate Admission” form and pay the one-time application fee. For degree-seeking students, official transcripts (signed, sealed and sent directly from higher education institutions) of all previous college and/or university work must be submitted. Students applying for Graduate Education programs must submit a copy of their teaching certificate (for most, but not all programs - see specific program for details). All degree-seeking programs require letters of recommendation and some require test scores for admission. (See specific program requirements.) For information on testing, contact the Educational Testing Service, Box 955, Princeton, NJ 08540.

Students, other than international students, who are unable to complete the application process prior to the beginning of their first semester may be allowed special admission to the program pending processing of their applications. This policy does not imply ac-
ceptance of the student into the degree program. Students failing to complete the application process by the beginning of the second semester after their initial application may be denied the right to register for courses.

CATEGORIES OF ADMISSION
A graduate student may be admitted either as a degree or a special non-degree student, depending upon the student's objectives. After admission to one of these categories, request for a change of status must be officially acted upon by the Graduate Studies Office.

Wilkes undergraduate students may be permitted to enroll in certain graduate courses with the approval of their advisors, the Chairperson of the Department offering the course, and the Graduate Studies Office. Credit for such courses will be at the undergraduate level.

DEGREE-SEEKING STUDENTS
Regular admission is granted to students who have completed the application process and who have demonstrated an acceptable level of academic work in their undergraduate program and are prepared for work at the graduate level in their field of specialization.

Provisional admission is granted to students who satisfy general admission requirements but who have undergraduate or admission-testing deficiencies. Typically, the deficiencies are undergraduate prerequisites that are required and completed prior to beginning graduate courses. Some graduate programs may allow a provisionally admitted student to begin graduate work before, or simultaneously with, the completion of undergraduate or testing prerequisites. A student granted provisional admission will be permitted to take a maximum of 12 graduate credits in this admission category. Upon the completion of 12 graduate credits, a provisionally admitted student will either be granted regular admission or denied admission into the graduate program. Under extraordinary circumstances, a student may petition the Dean of Graduate Studies and Continued Learning for an extension.

Conditional admission is granted to students who meet general admission requirements but who have a marginal undergraduate record. A student granted conditional admission will be permitted to take a maximum of 6 graduate credits in this admission category. Upon completion of 6 graduate credits, a conditionally admitted student will either be admitted or denied admission into the graduate program based on his/her performance. Under extraordinary circumstances, a student may petition the Dean of Graduate Studies and Continued Learning for an extension.

It should be noted that individual graduate programs retain the right to impose more rigorous conditions on students who have been admitted either provisionally or conditionally. Such conditions, if imposed, will be detailed in the letter of admission sent to the student.

SPECIAL NON-DEGREE STUDENTS
Students may apply for admission and register as special non-degree students. They must complete the Application for Admission form, check status desired (special non-degree) and
pay the application fee. Special non-degree students are allowed to accumulate up to six credits only. Upon the completion of six credits, they must declare their intention to change their status to degree candidate status or their right to register for courses may be revoked. Exceptions to this policy must be approved by the Chairperson of the Department in which the student seeks to take additional courses as a special non-degree student. This option is not available to international students.

**PROFESSIONAL DEVELOPMENT FOR TEACHERS**

Certified teachers wishing to take graduate courses for professional development are allowed to register as special non-degree students. They must complete the Application for Admission form, check status desired (special non-degree), pay the application fee, and submit a copy of their teaching certificate. While there is no limit on the number of graduate courses that teachers may take for professional development, it is understood that these courses may not fulfill requirements for a master's degree at Wilkes. Teachers should consult the Education section of this Bulletin for degree requirements as well as confer with the Director of Operations for Graduate Education in order to determine which courses are required for a specific M.S. in Education degree or Letter of Endorsement at Wilkes.

**INTERNATIONAL STUDENTS**

International students, applying for an F-1 visa, must submit all required application documents, in addition to all documents described in the Application section above, at least three months prior to the beginning of the semester in which they intend to begin graduate studies. Wilkes University reserves the right to require two certified English translations of all academic records.

All applicants whose native language is not English and who hail from non-English speaking countries must take the TOEFL (Test of English as a Foreign Language) and submit the results of this test with the application for admission or provide proof that their language of instruction was English. A student must present a minimum TOEFL score of 550 (203, computer based or 74, internet based) to be considered for admission.

It is required that each international student submit an affidavit of support and bank statement indicating that the applicant has access to funds at least equal to one full year of tuition plus living and personal expenses in the United States.

The Immigration and Naturalization Service of the United States Department of Justice requires a certificate of eligibility (Form I-20A) to be initiated by the University prior to applying for a student visa to study in this country. Any extension of stay or employment while in the United States must have the prior approval of the regional office of the Immigration and Naturalization Service.

International students in the graduate program must maintain full-time student status (at least 9 credit hours per semester).

International students may be required to take certain courses for undergraduate credit that
are not applicable to the master's degree. In some cases these courses will be specified in the admissions letter, but the Department Chairperson and the student's advisor may add requirements if a student is found to be deficient in the English language or in background knowledge in the field.

All international students must register their names with the Coordinator of International Student Services as soon as they arrive. The Coordinator of International Student Services, located in Passan Hall, serves as advisor on non-academic matters to all international students. Services provided include counseling on housing, visa and other issues related to life in the United States.

The Coordinator of International Student Services provides immigration and visa information and assistance as well as advice on personal issues. The Coordinator also provides orientation to life in the United States and the American educational system; assists students in dealings with U.S. and foreign government agencies, other campus offices and departments, and the community; and serves as advisor to the International Student Organization.

**ACADEMIC INFORMATION**

**DEGREE REQUIREMENTS**

Students may be awarded the master's degree upon satisfaction of all graduate degree requirements and the following specific requirements:

1. A **completed file** (application, application fee, official transcripts, copy of teaching certificate, letters of recommendation, and any required testing).
2. **Regular admission** into a graduate program;
3. **Satisfactory completion of all requirements for the degree** to be completed within six calendar years preceding the date of the granting of the degree. If an extension of the six-year limit is needed, a request should be submitted in writing to the Graduate Studies Office. The Graduate Dean will review the request and consult with appropriate parties (graduate program director, chairperson, advisor or academic dean) and will notify the student and the appropriate administrative offices of the final decision.
4. **A minimum average of 3.0 for all graduate work** (see Grade Regulations);
5. **If a thesis is required**, the candidate should:
   a. Be accepted by a thesis advisor and an Advisory Committee before completion of nine hours of graduate study;
   b. Submit an acceptable thesis in the required format and quantity of copies no later than three weeks prior to the commencement at which the degree is to be conferred;
   c. Arrange for publication of the thesis. (see Thesis Policy);

Specific requirements for graduate degrees will be found within each of the degree programs described in the following sections.

Students **CANNOT** substitute other courses for any of the required core courses in any program without the express written consent of the department chair/director.
REGULATIONS ON THESIS RESEARCH

Each graduate student shall select a major advisor under whose direction he/she wishes to pursue thesis research, if a thesis is required. Following acceptance of the candidate, the advisor shall appoint two other members of the graduate faculty to serve with the advisor as the student's Thesis Advisory Committee. Students in the doctoral program in Education should refer to the Handbook for Doctoral Students for more complete details on the dissertation.

Part-time students employed in laboratories on a full-time basis may be permitted to conduct their thesis research in these laboratories, if a mutually satisfactory agreement can be reached by the student, the laboratory staff, and the University. In such cases, a qualified member of the staff of the employer shall be named by the Department Chairperson to serve as a member of the student's Thesis Advisory Committee. This staff person shall be appointed an adjunct professor of the University and shall supervise day-to-day progress of the student's research.

MASTER'S THESIS POLICY

1. Upon approval of the thesis topic, the student and the advisor will identify the objectives, develop a timetable, and plan the distribution of credits in that timetable. This written plan will be placed in the student's files in the department office and the Student Services Office.
2. The student shall be continuously registered for a minimum of one thesis credit up to and including the semester that he/she defends the thesis and submits the final copies of the thesis.
3. The thesis objectives should be completed within the allocated number of credits and within the timetable developed; however, circumstances and the uncertainties associated with research and project work may require subsequent adjustments to the credits allocated and the timetable. Such adjustments shall also become part of the student's files in the department office and the Student Services Office.
4. Students registered for thesis credits will be awarded a grade reflecting the level and the quality of work conducted for that semester. Incomplete and audit designations are explicitly excluded as thesis grades.
5. The satisfactory completion of the thesis is indicated by passing the oral examination and obtaining the necessary approvals from the Thesis Advisory Committee, the Department Chairperson, and the Graduate Studies Office.
6. Student appeals to any provisions in this policy shall be to the Thesis Advisor, the Department, and finally to the Graduate Studies Committee.

The original and three copies of the thesis must be submitted to the Graduate Studies Office after the thesis has been approved by the Advisory Committee. One copy will be filed in the Library, one in the Graduate Studies Office and one in the appropriate department. If the student desires a personal copy bound, an additional copy should be furnished. For thesis binding fees, see section on Fees and Expenses.
GRADING
Numerical grades are given for graduate work:
4.0 = A Academic achievement of superior quality
3.5 = B+ Academic achievement of good quality
3.0 = B Academic achievement of acceptable quality in meeting graduation requirements
2.5 = C+ Academic achievement of adequate quality but below the average required for graduation
2.0 = C Academic achievement below the average required for graduation
0.0 = F Failure. No graduate course credit

A grade of "X" indicates assigned work yet to be completed in a given course. Except in thesis work, grades of "X" will be given only in exceptional circumstances. Grades of "X" must be removed through satisfactory completion of all course work no later than four weeks after the end of the final examination period of the semester in which the "X" grade was recorded. Failure to complete required work within this time period will result in the conversion of the grade to 0. An extension of the time allowed for the completion of work should be endorsed by the instructor in the form of a written statement and submitted to the Registrar.

APPEAL OF GRADE POLICY
Students who have a clear and justifiable grievance with reference to a grade should first seek resolution with the instructor and, subsequently, with the Department Chairperson/Director. It is expected that they will consult with the faculty member in an effort to resolve the dispute. The Chairperson/Director may also exercise the option to involve others in the discussions with the faculty member.

If satisfaction cannot be obtained, the student has the right to appeal to the Dean of Graduate Studies and Continued Learning. The appeal must be made by the end of the fourth week of the subsequent fall or spring semester. The Dean of Graduate Studies and Continued Learning will consult with the Department Chairperson/Director and will establish an Appeal Committee of three faculty members - at least two of whom shall be from the department of the faculty member concerned, if possible. A Committee Chairperson will be appointed by the Dean of Graduate Studies and Continued Learning. The Committee Chairperson will notify the faculty member of the appeal and the composition of the Committee.

The Appeal Committee will review the student's complaint, interview the faculty member, and study the evidence presented by both parties. If necessary, the Committee may interview the student, other students or faculty in its efforts to determine the facts.

The Committee will make a report to the Dean of Graduate Studies and Continued Learning in which it reviews the issues and recommends a solution. In most cases this will be a recommendation to uphold the grade awarded by the instructor or to alter the grade that the student received. In some cases the recommendation may be to present the student with other alternatives such as the completion of additional work before a final grade is determined.
The Dean of Graduate Studies and Continued Learning, after consultation with the Provost, will inform the faculty member and the student of the recommendations of the Appeal Committee and will take the steps that are necessary to implement the recommendations.

**AUDITING**

A person desiring to audit a course does not need to meet normal admission requirements, but must obtain approval to audit from the course professor and indicate "audit" on the registration form. Auditors must file the regular Application for Admission and pay the application fee. The student receives no credit for courses taken as an auditor and does not complete examinations or turn in written work in these courses. Auditing cost is one-half of total course tuition.

A student enrolled in a course may apply to become an auditor by completing a change-in-class-status form, available at the Student Services Office, and must obtain approvals from the advisor and course professor. This change of status must be completed before the end of the second week of the class.

**REGULATIONS FOR WITHDRAWAL**

A student may withdraw from a course during the first three weeks of the semester by informing the instructor, completing a withdrawal form that is co-signed by the student and the student's advisor, and returning the signed form to the Student Services Office within the first three weeks of the semester. A student may withdraw from a course from the end of the third week through the eighth week only with the approval of both the instructor and the student's advisor. (The completed form must be returned to the Student Services Office by the end of the eighth week.) Thereafter, a student may withdraw from a course only for serious circumstances, as determined by the Department Chairperson or the Director/Coordinator of the appropriate graduate program in consultation with the instructor and the Graduate Studies Office. A mark of "W" indicates an authorized withdrawal from the course. Students are advised that withdrawing from a course(s) may have financial implications; see sections on “Refunds” and “Withdrawal-Return of Financial Aid Funds” in this bulletin for more information.

It is the student's responsibility to initiate withdrawal from a course by obtaining the withdrawal form from the Student Services Office, having it signed by the appropriate personnel, and returning it to the Student Services Office within the three- or eight-week period. A grade of "0" is assigned by the instructor and recorded for all courses in which no official withdrawal, as specified above, has been completed by the student.

"W" is not a grade; it does not constitute a reflection of academic performance within a course. The appropriate grade for academic performance below the minimum standard for course credit is "0."

A "W" granted during the first three weeks reflects a decision on the part of the stu-
dent, after consultation with the instructor and advisor, not to be enrolled in a course. A "W" granted during the remainder of the course constitutes recognition and agreement by the student, instructor, and advisor, that, due to some extraordinary circumstances beyond the student's control, enrollment in that course is not possible or feasible. Fear of receiving a low grade does not constitute an extraordinary circumstance.

ACADEMIC PROBATION AND INELIGIBILITY
A graduate student who accumulates two grades below 3.0 in one or more graduate courses will be placed on probation. A student earning a third grade below 3.0 will be dismissed from the graduate program. A student who is dismissed from the graduate program may request a review of the case by the Faculty Committee on Graduate Studies. The request should be submitted in written form to the Dean of Graduate Studies and Continued Learning.

Individual programs may have more stringent academic progression requirements than those prescribed by the Graduate Division. Students are urged to review program-specific academic progression requirements that may be described in the section of this bulletin pertaining to their program.

STUDENT CONDUCT
Graduate students are obligated to observe the regulations governing all Wilkes University students relative to:
1. Academic honesty and integrity;
2. Respect for the rights of others relative to their safety, welfare and educational commitments;
3. The safety and security of the entire community.

Any disciplinary cases arising from a lack of observance of these regulations will be adjudicated by the Dean of Graduate Studies and Continued Learning and the Office of Student Affairs. Appeals from the decisions of this Committee may be made in written form to the Dean of Graduate Studies and Continued Learning.

Policies regarding student conduct are published in the Wilkes University Student Handbook, which is available on the web site at www.wilkes.edu.

COURSE NUMBERING
Courses are designated by three-digit numbers. The first digit denotes the level of the course as follows:
- 400-499 Courses for graduate students and advanced undergraduates
- 500-599 Courses for graduate students only (except with special permission)
- 600-699 Courses for doctoral students only (except with special permission)

TRANSFER CREDITS
(Please see individual department information for program-specific considerations.)
A maximum of six credits of graduate work done at another accredited university or college may be applied toward the requirements for a master's degree. There is no excep-
tion to this policy. Transfer credit allowances for the doctoral degree in Education are generally limited to twelve post-master's credits. Details may be found in the Student Handbook for Doctoral Students. Acceptance into a graduate program is necessary before credits can be considered for transfer. Students seeking to transfer courses from another institution may be requested to produce a course syllabus and course work so that a final determination can be made. Academic officers at Wilkes review the syllabus to determine if the course contains master's level learning objectives, a sufficient number of contact hours (40-45 for a three-credit course), and an appropriate content outline containing assessments and assignments that clearly delineate student performance.

Wilkes University does not transfer credits for 1) courses titled as workshops; 2) other courses that are determined not to meet academically rigorous standards; 3) courses that do not align with the goals and objectives of existing Wilkes courses; or 4) courses taken as Pass-Fail. The Master of Arts in Creative Writing does not accept transfer credits.

A transfer credit form must be submitted and an official transcript provided in order for credits to be transferred. Approval for any transferred credits toward a degree program must be granted by the Program Director, Department Chair, or, in the case of Graduate Education, the Director of Operations. Transferred academic work must have been completed within six years prior to the date of admission to the graduate program at Wilkes, with a grade of B or better. Pass-Fail grades are not transferable to a degree program unless the "Pass" can be substantiated by the former institution as being a grade of B or better. Grades earned in transferred courses are not included in the computation of the cumulative grade point average at the University.

Current Wilkes graduate students who seek to take a graduate course at another accredited university or college and transfer the credits back to the University must complete a "Pre-Approval Form" prior to registering for the course. An official transcript must be requested from the other institution as soon as it is available and sent to the Graduate Studies Office. All completed forms for transfer of credits should be submitted to the Graduate Studies Office.

A student cannot be approved for graduation until all transfer credits are approved by the program director, an official transcript has been received at Wilkes from the institution granting the credit, and the approved transfer credits are posted to the Wilkes University transcript. All paperwork must be received before each semester's Wilkes graduation clearance deadline.

CHALLENGE EXAMINATIONS

Students who desire to remove undergraduate deficiencies may do so by formal course work or by challenge examination. Challenge examinations cannot be used to earn credits toward the graduate degree. Arrangements are made by the student directly with the Graduate Program Chairperson/ Director. The fee for each challenge examination is $85 per credit.
TRANSCRIPTS
Transcripts are provided by the Student Services Office. They are issued only upon written request by the student and should be requested at least three weeks prior to the date needed. A student requesting a transcript in person at the University Center on Main (UCOM) must present valid identification.

Transcripts given directly or mailed to students do not carry the University seal and are not official. The seal is attached only when the transcript is mailed directly from the University to another academic institution or authorized agency. There is no charge for the first transcript requested from Wilkes. The student will pay $15 for each additional transcript. Same-day-service transcripts are available for a fee of $20 for each transcript.

A transcript of work completed at any college or university other than Wilkes University must be obtained directly from that institution.

THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974
Wilkes University, in full compliance with the Family Educational Rights and Privacy Act of 1974 (FERPA), shall make educational records available to students upon request. Likewise, in accordance with the law, individually identifiable educational records will not be released to other than authorized individuals without written consent of the student.

Wilkes University has established a policy on access to and release of student information for compliance with provisions of this Act. This policy is published in the Wilkes University Student Handbook, which is available on the web site at www.wilkes.edu.

GENERAL INFORMATION

FULL-TIME STUDENT STATUS
A graduate student’s status as full- or part-time is determined by the number of graduate credits the student carries in a semester. Nine graduate credits per semester is the minimum number of credits a graduate student may carry to be considered a full-time graduate student. A graduate student registered for six graduate credits in a semester is considered a half-time student.

UNIVERSITY IDENTIFICATION CARDS
Wilkes University provides a photo identification card (University ID card) to all of its eligible employees and students; additionally, University approved contracted personnel will be issued a University ID card. The University ID card will be used to identify all persons affiliated and employed by the University in order to facilitate safety and security; allow the cardholder access to specific areas, services and resources; and provide other privileges as designated by the University and/or its departments. All persons affiliated with and employed by the University are required to carry their University ID card at all times.

The University ID card is intended to serve as proof of an individual’s status with the
University. Depending on one’s status with the University, access and privileges are restricted based on specific requirements. All eligible employees, students and University-approved contracted personnel who have been issued a University ID card are required to provide the card when properly requested by an agent of the University.

If the person refuses to furnish the University ID card he/she will be removed from the building/premises and/or subject to disciplinary action. Each University ID card is the property of the University; anyone who alters or intentionally mutilates the University ID card, who uses the University ID card of another, or who allows his/her University ID card to be used by another is subject to disciplinary action.

If a card is lost or stolen it can be replaced at the University Service Center between 8:00 a.m. and 8:00 p.m. Monday–Friday. A fee of $25 will be charged to the student’s account. Wilkes University’s ID Card Center is located at the University Service Center, 1st Floor, 148 S. Main Street (UCOM Parkade). The ID Card Center’s operating hours are Monday -- Friday 8:00 a.m. to 8:00 p.m. and other designated hours established by the Campus Support Services Department.

LIBRARY
The Eugene S. Farley Library, located on the corner of South Franklin and South Streets, is one of the largest resource libraries in the region with more than 200,000 volumes of books and bound journals; over 430 journals and newspaper subscriptions; 10,000 full text journals; 800,000 units in microform; instructional audio-visual materials; and a growing collection of classic films on DVD. The Library utilizes a variety of parallel and integrated automated systems.

Library hours during the academic year are from 8:00 a.m. to 11:45 p.m. Monday through Thursday, with different but fairly extended hours from Friday through Sunday. Library hours during the Summer Sessions and holiday hours, as well as any changes in hours, are posted at the Library. Library services can also be accessed online at www.wilkes.edu/library for off-campus or distance learners.

ROOM AND BOARD
There are no housing facilities exclusively for graduate students on the Wilkes campus. Nor does the University provide accommodations for married couples or families. Graduate students are housed in University residence halls only on a space-available basis. Graduate students who are interested in living on campus should contact the Residence Life Office to determine space availability.

The University Dining Hall, in the Student Center, is open to members of the Wilkes community. Resident students are required to be on a meal plan, and other members of the community may purchase meal plans as well. For information on meal plans, graduate students should contact the University Service Center at 1st floor, 148 S. Main Street (UCOM Parkade).
For casual dining, the Rifkin Cafe, located on the first floor of the Student Center, offers the Wilkes community a menu featuring “on the go” snacks and meals from morning into the evening; and Einstein Bros. Bagels, on the first floor of UCOM, serves up a variety of omelettes, bagels, salads, sandwiches, and soups for breakfast or lunch.

**PARKING**
Wilkes maintains parking areas on- and off-campus, and use of these facilities on week-days until 4:30 p.m. is by permit only. Except for resident parking lots, these areas are open for graduate student parking on weekends, and after 4:30 p.m. on weekdays, without a permit. Parking permits are issued on a varied schedule based on the applicant’s relationship with the University and the availability of parking spaces. For information about the application process, contact the Campus Support Services Department at ext. 2349.

A limited number of handicapped spaces are available in the on- and off-campus parking areas. Arrangements for a handicapped permit can be made through the Campus Support Services Department, 1st floor, 148 S. Main Street (UCOM Parkade).

**BOOKSTORE**
Wilkes University and King’s College, through Barnes & Noble College Booksellers, Inc., operate a joint bookstore facility on South Main Street, just off of Public Square. The “academic superstore” is designed to meet the needs of students as well as the community at large. The store features full textbook services -- both new and used; a full selection of general trade books; a local authors section, a full-service Starbucks Café and lounge chairs and tables. It also houses a “spirit” shop featuring logo merchandise for Wilkes University. A full selection of textbooks, supplies, and logo merchandise is available for purchase on the Barnes & Noble web site, [www.bncollege.com](http://www.bncollege.com).

**HEALTH SERVICE**
The Office of University Health Service maintains regular hours while the University is in session for the fall and spring semesters. A Nurse Practitioner and a Registered Nurse are available while Health Service is open, and a physician is available at specified hours during the week. Appropriate referrals are made as necessary to community physicians and hospitals. The Office of University Health Service does not provide clinic hours during the summer months.

In times of escalating health care costs it is essential for students to have health insurance coverage.

**CAREER SERVICES**
The Office of Career Services is the liaison between the University and potential employers in business, industry, government, and educational institutions. Various services are offered to assist students at all stages of their career development. Students are encouraged to participate in this service by registering at the Max Roth Center at 215 South Franklin Street.
FINANCIAL INFORMATION

TUITION AND FEES
All payments can be directly mailed to: Wilkes University—Student P.O. Box 8500-54693. Philadelphia, Pa 19178-4693. Discover, Visa and MasterCard payments can be made on the Wilkes University web site, www.wilkes.edu, or by calling the Student Services Center at 570-408-2000. Any questions concerning charges or payments should be directed to 570-408-2000 or onestop@wilkes.edu. Payments can be made in person at the cashier’s window, located on the first floor of University Center on Main (UCOM).

Several plans have been developed to assist students who do not have the cash in hand, and it is suggested that these plans be considered when special assistance is needed. Students may consult with the Financial Aid Director for information regarding scholarships and loan programs.

Subject to the regulations concerning refunds, the total tuition is considered fully earned by the University upon completion of registration by the student.

The following chart summarizes graduate and professional student expenses for the 2007-08 academic year, which officially begins with the Summer Session, 2007.* Students are referred to the course descriptions in this Bulletin for laboratory and other fees associated with particular courses. Inquiries about particular charges should be addressed to the Controller’s Office. Note that graduate and professional school tuition and some fees are program specific.

GRADUATE AND PROFESSIONAL PROGRAM TUITION AND
PROGRAM-SPECIFIC FEES

Doctoral and Professional School (Pharmacy) Tuition and Fees

EDUCATION (Ed.D)

<table>
<thead>
<tr>
<th>Program</th>
<th>Fee Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed.D.</td>
<td>$403 per credit hour</td>
</tr>
<tr>
<td></td>
<td>(2007 Summer Session Only)</td>
</tr>
<tr>
<td>Ed.D.*</td>
<td>$414</td>
</tr>
<tr>
<td></td>
<td>(2007-08 Academic Year, Summer 2008 Only)</td>
</tr>
</tbody>
</table>

Application Fee $45

PHARMACY (Pharm.D.)

First Professional (Pharmacy School) Tuition and Fees:

<table>
<thead>
<tr>
<th>Program</th>
<th>Fee Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time Tuition</td>
<td>$12,125 per semester</td>
</tr>
<tr>
<td>(12-18 credits)</td>
<td></td>
</tr>
<tr>
<td>General University Fee</td>
<td>$340 per semester</td>
</tr>
<tr>
<td>Pharmacy Clerkship Fee</td>
<td>$220 per semester</td>
</tr>
<tr>
<td>Recreation Fee</td>
<td>$30 per semester</td>
</tr>
<tr>
<td>Student Activity Fee</td>
<td>$110 per semester</td>
</tr>
<tr>
<td>Student Union Fee</td>
<td>$25 per semester</td>
</tr>
<tr>
<td>Technology Fee</td>
<td>$125 per semester</td>
</tr>
</tbody>
</table>
Master’s Programs Tuition and Fees:

M.A. IN CREATIVE WRITING and
M.F.A. IN CREATIVE WRITING $565 per credit hour
   Application Fee $35
   Acceptance Deposit $250 (one-time fee)
   General University Fee $25 per credit hour
   Technology Fee $25 per credit hour
   Thesis Reader Fee $250 (one-time fee)

M.B.A. $685 per credit hour

M.S.Ed. $336 per credit hour
   (2007 Summer Session Only)

M.S.Ed.* $345
   (2007-08 Academic Year, Summer 2008 Only)

M.S., M.S.E.E., M.S.E.O.S. $760 per credit hour
M.S. (Nursing) $450 per credit hour
M.S. (Nursing/Professional Master’s) $11,410 per semester
   (2007-08 Academic Year, Summer 2008 Only)

GENERAL FEES:
   Application Fee $45 (one-time fee)
   Audit Fee One-half of tuition cost
   Challenge Examination Fee $85 per credit hour
   English as a Second Language Fee $5,200 per semester
   General Fee $30 per credit hour
   Graduation Fee $150 (charged to all graduating students
      in their last semester)
   Technology Fee $25 per credit hour
   Thesis Binding Fee $20 per copy
   Transcript Fee The first transcript is free of charge;
      the fee for the second and subsequent
      transcripts is $15 per copy.

Individual departments have the right to charge laboratory and breakage fees as appropriate.

Third-Party Billing and Deferred Payment forms may be picked up at the Controller’s Office in UCOM or on the Wilkes web site. These forms must be submitted each semester.

Note: The Controller’s Office is prohibited from signing graduation clearance forms until any outstanding balance is paid in full. Graduates who have requested the deferred payment option must pay the final semester balances personally before clearance forms are signed (or have a written guarantee from their employer that the amount will be paid to Wilkes regardless of course completion or final grade). Those prospective graduates not complying with the above policy will not be cleared until actual cash payment is received from their employer.
PAYMENT OF CHARGES

Prior to the beginning of each semester, invoices listing all current semester charges and approved financial aid are mailed to all registered students. All payments can be mailed directly to Wilkes University - Student / P.O. Box 8500-54693 / Philadelphia, PA 19178-4693. Discover, Visa and Mastercard payments can be made on the Wilkes University website (www.wilkes.edu) or by calling the Student Accounts Office at (570) 408-2000. Any question concerning charges or payments should be directed to (570) 408-2000 or billings@wilkes.edu. Payments can be made in person at the cashier’s window located on the first floor of University Center on Main (UCOM).

Students who fail to pay all indebtedness to the University shall not be permitted to receive any degree, certificate, or transcript of grades. Nor shall they participate in Commencement activities.

FALL AND SPRING FULL-TIME TUITION

The unfunded cost of full-time tuition and fees will be paid or satisfactory arrangements made with the Controller’s Office two weeks before the day on which classes begin. Unfunded costs are defined as the total of all appropriate charges for tuition, fees, room and board, etc., less the total of all approved financial aid awarded or credited to the student account for each semester or other instructional period. Satisfactory arrangements are defined as:

a. Enrollment in the Monthly Payment Option plan (discussed below);

b. Participation in the Deferred Employer Reimbursement plan;

c. Enrollment in one of the third-party, sponsored tuition coverage plans (ROTC Scholarship, Bureau of Vocational Rehabilitation, Office of the Blind, etc.).

If the payment in full or satisfactory arrangements are not made two weeks before the first day of class each semester, the registration for that semester will be cancelled and the student will not be allowed to attend classes. In order to be reenrolled and reregistered, the student will be required to pay a late registration fee of $50 in cash before registering. Students whose accounts are two payments late will be cancelled from the Monthly Payment Option plan and the full unpaid amount will immediately become due and payable. All students who fall into this category and those students who have been written off as bad debts or have been turned over to a collection agency will not be eligible for consideration of any other alternative financial arrangements.

Students who have applied for a Stafford Loan (Guaranteed Student Loan) where approval has not been granted by the bank will be required to pay the lesser of $300 or 25% of the loan requested two weeks before the first day on which classes begin. If the Stafford Loan (Guaranteed Student Loan) is subsequently approved, refunds of overpayments will be made after the loan check is posted to the student’s account.

SUMMER, FALL, AND SPRING PART-TIME TUITION

Charges for summer and/or part-time tuition and fees must be paid in full two weeks before the first day of classes unless covered by the Deferred Employer Reimbursement policy. The deferred payment policy is described below.
DEFERRED PAYMENT POLICY (EMPLOYER REIMBURSED)
Deferred payments for employer reimbursement and third party payor arrangements will be permitted, provided the student makes application and receives approval and delivers the completed documents two full weeks before classes begin. Graduating students are not eligible for the deferred payment option.

MONTHLY PAYMENTS
Wilkes has developed an interest-free, Installment Payment Plan to help ease the burden of financing an education. Arrangements may be made to finance the total unfunded cost of tuition and fees.

The following are some of the financial institutions that provide educational loans for parents and students:
    Key Education Resource Group: for information, call 1-800-key-lend
    CitiAssist Loan at Citibank: for information, call 1-800-967-2400
    Signature Loan at Sallie Mae: for information, call 1-800-695-3317

REFUNDS
Students who withdraw from the University or from specific classes during the semester will be entitled to an adjustment of tuition, fees, and room and board charges according to the refund schedule below. Before a refund will be processed and released by the Controller’s Office, there must be an official withdrawal form or written request on file at the Registrar’s Office. The date of official withdrawal will be determined by the date the notification is given to the Student Services Office.

REFUND SCHEDULE*

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Time of withdrawal</th>
<th>Tuition Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Week</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>Second Week</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Third Week</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>Fourth Week</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>Fifth Week</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>Sixth Week</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Seventh Week</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>Eighth Week</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Ninth Week</td>
<td>40%</td>
<td></td>
</tr>
</tbody>
</table>

8-week Summer Sessions
- First week: 50%
- Two weeks of evening sessions: 50%
- Second-eighth weeks: No refund

Weekend College
- Through second weekend: 50%
- After second weekend: No refund
*For graduate students on board plans, in the event of withdrawal at any time during the 15-week semester, meal charges will be refunded on a pro-rated basis from the end of the week during which official withdrawal was recorded in the Student Services Office.

*Please note that the MBA Summer Session will follow the Academic Year refund schedule.

ASSISTANTSHIPS AND COUNSELORSHIPS
The University awards a limited number of graduate assistantships. Positions are posted by department on the Wilkes web site. Applications for these assistantships must be filed with the Department Chairperson/Manager based on the application deadline listed in the posting. The department then reviews the graduate assistantship applications and a recommendation for awarding assistantships is made to the Dean of Graduate Studies and Continued Learning. Award letters are then sent to the individual or individuals who have been named as graduate assistants.

CRITERIA FOR SELECTING GRADUATE ASSISTANTS
1. Admission to the program and full-time status.
2. Full-time (nine credits per semester) status while holding the assistantship.
3. Minimum 3.0 undergraduate grade point average. Current graduate students may apply for an assistantship after completion of nine semester hours of graduate credit with a cumulative average of 3.0 or higher.
4. Two additional letters of recommendation and submission application materials.
5. Successful interview or equivalent assessment of suitability for assistantship by department personnel.
6. Ability and willingness to perform the duties outlined in the job posting and assigned by the Director/Department Chair of the respective program.
7. Counselorship in an undergraduate residence hall is available each year to graduate students. Applications for these positions must be filed with the Director of Housing no later than February 1 to be considered for the academic year beginning in September.

FINANCIAL AID

INSTITUTIONAL AND FINANCIAL ASSISTANCE INFORMATION
The following information concerning student financial assistance may be obtained from the Student Services Center in UCOM.
1. Financial aid programs available to students who enroll at Wilkes;
2. The method by which such assistance is distributed;
3. The means, including forms, by which application for student financial assistance is made; the requirements for accurately preparing such applications; and the review standards employed to make awards for student financial assistance.
RENEWAL OF FINANCIAL AID
Financial aid is awarded on an annual basis; therefore, students must reapply each year. In addition to showing continued financial need, students must also meet specific academic progress requirements to qualify for renewal. These requirements are explained in detail in the Consumer’s Guide to Financial Aid.

LOANS
There are several federal loan programs available to graduate students. While each has its unique characteristics, there are some standardized features that apply to all of the following loans. In order to qualify, a student must be accepted as a degree candidate, must be a U.S. citizen or permanent resident, must be enrolled on at least a half-time basis in eligible graduate-level courses and must be in good academic standing according to the academic progress standard set for receipt of federal aid. Financial aid eligibility for students who are conditionally or provisionally accepted is contingent upon the condition of the acceptance. These individuals should contact the Student Services Office at the University Center on Main (UCOM) to discuss their specific conditions. To determine eligibility, all students must complete the Free Application for Federal Student Aid (FAFSA). The FAFSA may be accessed from the Financial Aid page on the Wilkes University website.

In order for enrollment in courses to qualify for federal financial aid eligibility, the site at which they are offered must be approved by the Department of Education if more than 50% of the academic program is available at that site. Since the University seeks flexibility in selecting sites for the off-campus graduate education program, the University had not requested approval of each of these sites. Therefore, as of this printing, students enrolled in these courses do not qualify for federal financial aid, including the Stafford Loan program. Private loan programs, however, are available to help students enrolled in these courses cover educational expenses. The University is currently seeking approval of these sites and, therefore, eligibility for Stafford Loans may become available with the Fall Semester, 2007. Contact the Student Services Center at (570) 408-2000 for additional information on these loans.

IMPORTANT TERMS
Academic Grade Level: Graduate programs are divided into two grade levels; the first 15 graduate credits are grade level 6 and the remainder of the program is grade level 7.

Academic Progress: For continued participation in the loan programs, students must meet specific academic progress requirements, which include the successful completion of a specific number of credits based on their enrollment status and the maintenance of a 3.0 cumulative grade point average.

Enrollment Status: Full-time is 9 graduate credits per semester; half-time is 6 graduate credits per semester.

Graduate Student: A student who has been officially accepted as a candidate in a grad-
uate degree program. A completed file has been reviewed and an acceptance letter has been issued.

**FEDERAL STAFFORD LOANS**

The subsidized Stafford Loan is a federal program that enables students to borrow money from a bank, credit union, savings and loan, or other participating lenders. It is available to graduate students who are enrolled on at least a half-time basis and who show financial need. The loan is interest-free while the borrower is enrolled at least half-time and for the first six months following termination of such enrollment. The government pays interest on subsidized loans while the student is enrolled in graduate school on at least a half-time basis. Graduate students may apply for $8,500 per academic year.

Interest begins to accrue the seventh month after the student ceases to be enrolled on at least a half-time basis. Beginning on July 1, 2006, the interest rate is 6.8%.

Repayment of principal and interest begins six months after the student ceases to be enrolled on at least a half-time basis.

The Unsubsidized Stafford Loan differs from the subsidized Loan in that the student must pay the interest on the loan while enrolled or have the interest capitalized. This loan is for students who do not qualify for a Subsidized Loan because of lack of financial need for any or all funds under the Subsidized Stafford Loan program.

A borrower who is eligible for a portion of the Subsidized Stafford Loan may borrow the difference from the Unsubsidized Stafford Loan program. The maximum loan limit includes a combination of the subsidized and unsubsidized loan.

The borrower is expected to make quarterly interest payments while the student is enrolled in graduate school or have the interest capitalized. The loan carries a flexible interest rate.

Repayment of the principal begins six months after the student is no longer enrolled on at least a half-time basis.

**ADDITIONAL UNSUBSIDIZED STAFFORD LOAN**

Graduate students are eligible to apply for additional Unsubsidized Stafford Loan funds which are over and above the Stafford Loan maximums described above. The maximum additional amount is $12,000 per academic year with an aggregate limit of $138,000.

This loan carries the same interest rate and repayment obligation as described under the section on Stafford Loans.

**GRADUATE PLUS LOANS**

A Graduate Plus Loan is a low-interest education loan provided to graduate and professional students through the Federal Family Education Loan Program. This program supplements the Federal Stafford Loan Program and should only be used after a student’s Stafford eligibility is exhausted.
WITHDRAWAL - RETURN OF FINANCIAL AID FUNDS

In accordance with federal regulations, those students who receive federal financial aid and who withdraw from the University during the first 60% of a semester will have their federal financial aid (Pell Grants, Supplemental Educational Opportunity Grants, Perkins Loans, Nursing Loans, Stafford Loans and PLUS Loans) adjusted based on the percent of the semester completed prior to the withdrawal. That is, students will be entitled to retain the same percent of the federal financial aid received as the percent of the semester completed. This percent is calculated by dividing the number of days in the semester (excluding breaks of five days or longer). The date of withdrawal will be the date the student begins the withdrawal process at the Student Services Office unless attendance in class is documented after that date; in that case, the last date of documented attendance will be the official date of withdrawal. (See section on Withdrawals in the Bulletin.)

Students who do not follow the official withdrawal procedure but who stop attending classes for all of their courses will be considered to have withdrawn at the 50% point of the semester unless attendance is documented after that time. There will be no adjustment of federal financial aid after the completion of at least 60% of the semester.

Once the amount of the federal fund to be returned has been calculated, the funds will be returned in the following order:

- Unsubsidized Stafford Loans
- Subsidized Stafford Loans
- PLUS Loans
- Perkins Loans
- Pell Grant
- Supplemental Educational Opportunity Grants
- Nursing Loans

Pennsylvania and other state grants will be adjusted in accordance with the agency’s stated guidelines. It is expected that PHEAA Grant funds will be reduced by the same percent reduction in tuition received by a student when withdrawing from a course or courses.

Wilkes University grant and scholarship funds will be adjusted based on the percentage of reduction of tuition received by a student when withdrawing from the University.

Please note that students who received a refund of financial aid prior to withdrawing from the University may owe a repayment of federal financial aid fund received. Students will be contacted by the Student Services Office in such situations and will be given 30 days to repay the funds to the University. Students who fail to return the unearned portion of federal financial aid funds given to them will become ineligible for continued receipt of financial aid until such time as the repayment is made.
GRADUATION

It is the responsibility of the graduate student to sign up for a graduation audit no later than ninety days prior to the date of the Commencement Exercise at which the student expects to be graduated. This is done by registering for GRD-000-B (0 credits/$150.00 graduation fee) during the beginning of the final term before graduation. If registration is completed, students may call or write to the Graduate Studies Office or Student Services Office to notify of intent to graduate. A completed file and acceptance into a graduate program are required for graduation. Transfer credits (approval forms and official transcripts) must be received before each semester's graduation clearance deadline. Students changing their status from non-degree seeking to degree-seeking must do so at least a year prior to graduation.

Graduating students may participate in one of the two commencement exercises held over the calendar year. These exercises occur in May and September of each year. Diplomas given during September ceremonies will always be dated as the fourth Saturday in August.
MASTER OF BUSINESS ADMINISTRATION (MBA)

MISSION STATEMENT
The business program of Wilkes University, in its continuing effort to maintain excellence in teaching, serves as a resource to the University and to the community of businesses, entrepreneurial enterprises, not-for-profits, and governmental agencies, by preparing students for lifetime leadership roles and professional and personal contributions. The learning-centered Wilkes business program maintains an integrated curriculum, faculty, and facility designed to provide students and the community with knowledge and information addressing the traditional functional and cross-functional content areas of the business and accounting disciplines; proffers course-work and real world active learning experiences that provide analytical, problem-solving, interpersonal, technological, and communication competencies; and challenges students to develop sensitivity to the public policy and ethical dimensions of decision-making in an economy that is closely interrelated with a rapidly changing, diverse, and global community.

PURPOSE
The curriculum leading to the Master of Business Administration degree at Wilkes emphasizes a general, broad-based approach to graduate business education. Students acquire the quantitative and judgmental skills necessary for a manager to succeed. The program provides advanced training in the functional areas of business and also provides the opportunity for specialization in a selected field through additional training in Accounting, Entrepreneurship, Finance, Human Resources Management, International Business, Marketing, Operations Management, or Organizational Leadership and Development. The core objectives of the MBA include:

- To develop professional managers, with emphasis on the organization, operation, and control of an enterprise;
- To enable individuals to create and evaluate alternative courses of action as a procedure for making decisions;
- To give business persons an understanding of international business policies and practices;
- To prepare these business persons for the challenge of understanding and appreciating the cultural and subcultural similarities and differences in various business environments;
- To prepare students for further training through post-graduate and/or doctoral studies in business and related disciplines.

The program provides management education at the master’s level for students with varied undergraduate backgrounds: business and economics, engineering and science, and others. Master of Business Administration courses are offered on weekday evenings and in a year-round weekend format. Weekend courses are offered on Saturday and Sunday every third or fourth weekend, five weeks per trimester.
The Jay S. Sidhu School of Business and Leadership is a member of the Association of Collegiate Business Schools and Programs. The MBA program is accredited by the Association of Collegiate Business Schools and Programs.

ADMISSION REQUIREMENTS
Applications are invited from individuals who have earned undergraduate or graduate degrees in any discipline or field of study. To be considered for admission, the applicant must meet the following minimum requirements:

1. Submit to the Graduate Admissions Office a completed graduate application for admission with payment of appropriate application fee;
2. Submit two letters of recommendation from previous academic faculty and/or from current or previous supervisors, if employed. Letters of recommendation should attest to the student’s fitness for managerial leadership and discuss interpersonal and organizational skills;
3. Demonstrate satisfactory performance as an undergraduate by providing a complete set of official undergraduate transcripts to the Graduate Admissions Office.

To be accepted on a regular basis, a candidate for the Wilkes MBA must have obtained a cumulative GPA of at least 3.0 in his/her undergraduate degree program. A prospective student with a GPA of less than 3.0 may be accepted into the MBA program on a conditional basis. To change to regular status, the conditionally accepted MBA student must maintain no less than a 3.0 for each course in the first six graduate credits of the MBA program. Failure to maintain the minimum 3.0 in any course will result in dismissal of the conditionally accepted student from the MBA program.

The MBA Program at Wilkes practices intensive self-directed student advising. A student accepted into the program is immediately assigned an advisor. Advising sessions are used as an opportunity to communicate effective managerial role models, changing job market conditions, student career ambitions and strengths, and to identify course scheduling options. The focus of the advising process is to encourage students to develop a responsible and rewarding career.

MBA DEGREE REQUIREMENTS
The total number of credits required for the MBA is 48; the total number of credits that may be waived is 12. MBA Core Courses cannot be taken on an independent basis. The MBA degree is earned by completion of five distinct tiers. These are summarized below.

Tier I (3 credits): The Signature - This tier is comprised of a signature course, MBA 500, Business and Leadership, which introduces students to the eight distinct objectives (business ethics, communication, decision-making, diversity, leadership, professionalism, social responsibility, and team performance). The course is required as either a prerequisite or a co-requisite to all other courses in the MBA Program.

Tier II (0-12 credits): The Foundation - This is a series of twelve courses, each bearing one credit. Waivers are granted if the student, within ten years of admission to the
Wilkes MBA Program, has completed an equivalent credit-bearing course, while earning a grade of C or better. The twelve one-credit courses are as follows:

- MBA 5011 - Foundations of Financial Accounting
- MBA 5012 - Foundations of Managerial Accounting
- MBA 5013 - Foundations of Finance
- MBA 5021 - Foundations of Management
- MBA 5022 - Foundations of Marketing
- MBA 5023 - Foundations of Law
- MBA 5031 - Foundations of Macroeconomics
- MBA 5032 - Foundations of Microeconomics
- MBA 5033 - Foundations of International Business
- MBA 5041 - Foundations of Statistics
- MBA 5042 - Foundations of Operations Management
- MBA 5043 - Foundations of MIS

**Tier III (18 credits): The Core** - This tier is comprised of the following six courses:

- MBA 512 - Business Research Design and Methods
- MBA 520 - Marketing Management
- MBA 532 - Managerial Economics
- MBA 540 - Financial Management
- MBA 560 - Financial and Managerial Accounting
- MBA 580 - Business Issues in a Dynamic Environment

**Tier IV (9 credits): The Electives** - All MBA students are required to successfully complete three courses from those listed below. All students must declare a concentration, and each student must select at least two of these three courses in his or her concentration area. The nine concentrations, and the electives that satisfy these concentrations, are as follows:

- **Accounting** - MBA 545 - Investment and Portfolio Management; and MBA 566 - Advanced Topics in Accounting.
- **Entrepreneurship** - MBA 527 - e-Business for Marketers and Entrepreneurs; and MBA 585 - Corporate Entrepreneurship.
- **Finance** - MBA 545 - Investment and Portfolio Management; and MBA 546 - Advanced Topics in Finance.
- **Health Care Administration** - MBA 576 - Managing Health Care Systems; and MBA 577 - Advanced Topics in Health Care Management.
- **Human Resources Management** - MBA 553 - Advanced Leadership Theory; and MBA 555 - Human Resources Law and Compensation.
- **International Business** - MBA 536 - Advanced Topics in International Business; and MBA 537 - Global Business Experience.
- **Marketing** - MBA 526 - Advanced Topics in Marketing; and MBA 527 - e-Business for Marketers and Entrepreneurs.
- **Operations Management** - MBA 513 - Operations Management; and MBA 516 - Advanced Topics in Operations Management.
- **Organizational Leadership and Development** - MBA 553 - Advanced Leadership Theory; and MBA 554 - Organizational Diagnosis, Development, and Change.
**Tier V (6 credits): The Capstone** - All MBA students must satisfy a capstone requirement, including MBA 591, Strategic Management and Policy, a general capstone course covering all functional areas and all distinct objectives; and MBA 592, Advanced Projects in Business. In this latter course, the student is expected to perform work in his or her concentration. All work is monitored by a faculty supervisor, and in all cases, students offer a brief oral presentation on their work to faculty and peers. In addition, in all cases, a written paper or other research product is prepared and submitted by the student. These papers are published by the Sidhu School. Opportunities for this advanced work result from (a) business research, (b) internship / consulting, (c) community service, and (d) mentorship in the Sidhu School. Students are encouraged to register for MBA 591 and MBA 592 simultaneously in their final semester of study.
MBA WEEKEND COLLEGE CALENDAR, 2007-2008

Summer Session
May - August, 2007
May 5, 6
June 2, 3*
June 23, 24
July 14, 15
August 4, 5
August 11, 12
(Including Final Examinations)

Fall Session
September - December, 2007
August 25, 26
September 15, 16
October 6, 7
October 27, 28
November 17, 18
December 1, 2
( Including Final Examinations)

Spring Session
January - April, 2008
January 12, 13
February 2, 3
February 23, 24
March 15, 16
April 5, 6
April 12, 13
( Including Final Examinations)

* Four-week interval between class meetings
COURSE DESCRIPTIONS

TIER I - SIGNATURE COURSE

MBA 500. BUSINESS AND LEADERSHIP  Three credits
This course introduces the distinct objectives of the MBA program, including business ethics, communication, decision-making, diversity, leadership, professionalism, social responsibility, and team performance, in the context of traditional theories and models of organizational behavior.

TIER II - FOUNDATION COURSES

MBA 5011. FOUNDATIONS OF FINANCIAL ACCOUNTING  One credit
An overview of the accounting system and the applicable accounting principles and practices used by accountants and managers in decision making, planning and control, and the preparation of financial reports.

MBA 5012. FOUNDATIONS OF MANAGERIAL ACCOUNTING  One credit
A study of the essential foundations of managerial accounting. The course includes accounting and analysis techniques used in decision-making activities such as financial statement analysis and budgeting.

MBA 5013. FOUNDATIONS OF FINANCE  One credit
An introduction to the principles of financial theory and practice. Topics to be surveyed include financial decision-making, the financial model of the firm, financial markets, working capital management and capital budgeting.

MBA 5021. FOUNDATIONS OF MANAGEMENT  One credit
A foundation course that reviews theories of management and organizational behavior as they have been developed and applied in organizations. Topics will include the functions of managers, the decision-making process, leadership, social responsibility, ethical considerations and the special problems of operating in a global environment. The course is intended for graduate students who have not completed an undergraduate course in management within the past five years.

MBA 5022. FOUNDATIONS OF MARKETING  One credit
An introduction to the principles and practices of marketing. Topics will include consumer behavior, segmentation and targeting, marketing research, marketing mix and planning, promotional issues, pricing issues, services marketing, and global marketing.

MBA 5023. FOUNDATIONS OF LAW  One credit
A foundation for business managers to operate within the legal environment, and for individuals to engage in commercial transactions, including principles of contract law and property law.
MBA 5031. FOUNDATIONS OF MACROECONOMICS  One credit
A study of the essential foundations of macroeconomics. The course will introduce the problem of scarcity, and supply and demand analysis to the student. Additionally, the course will focus on a variety of topics including national income, unemployment, inflation, monetary, and fiscal policy.

MBA 5032. FOUNDATIONS OF MICROECONOMICS  One credit
A study of the essential foundations of microeconomics. The course will introduce the problem of scarcity and the concept of opportunity cost. Additionally, the course will focus on a variety of topics including the theory of the firm, and the efficiency of resource allocation under various market structures.

MBA 5033. FOUNDATIONS OF INTERNATIONAL BUSINESS  One credit
An introduction to the field of international business and international trade. Business enterprise in international trade, effects of economic, political, and social environment on international business and international trade.

MBA 5041. FOUNDATIONS OF STATISTICS  One credit
This course introduces students to the essential elements of applied statistical analysis appropriate for business organizations. It is intended for students who have never studied business statistics or those wishing to refresh their knowledge of probability theory, descriptive statistics and data relationships. Spreadsheet software will be used extensively; students registering for this course must have basic working knowledge of Microsoft Excel.

MBA 5042. FOUNDATIONS OF OPERATIONS MANAGEMENT  One credit
This course teaches students how to obtain information from data, and how to build models for making decisions. The goal is to sharpen the student’s ability to approach business-related problems by integrating methods and applications.

MBA 5043. FOUNDATIONS OF MIS  One credit
This course introduces the fundamental concepts underlying the design, implementation, control, and evaluation of business-oriented computer based information systems, office automation, information reporting, and decision-making.

TIER III - CORE COURSES

MBA 512. BUSINESS RESEARCH DESIGN AND METHODS  Three credits
This course presents methodology appropriate for conducting research in business organizations. It includes a brief review of introductory MIS principles, the business research process, and a discussion of ethics in the research process. The course will focus on research design and sampling methods, sources and collection of data, probability and probability distributions, estimation and hypothesis testing, and the presentation of data (both oral and written). The emphasis of the course is on data analysis and spreadsheet use in statistics and management science. Course activities may include case analyses,
research, application of advanced techniques, and/or utilization of various information
technologies.
Prerequisite(s): MBA 500 (co-requisite), MBA 5041, MBA 5042, MBA 5043.

**MBA 520. MARKETING MANAGEMENT**
Three credits
This course presents a strategic foundation for marketing decision-making. It integrates
the tactics of information gathering, environment analysis, competitive analysis, product posi-

tioning and the implementation of strategic positioning. Emphasis is placed on written and
verbal communications skill development.
Prerequisite: MBA 500 (co-requisite), MBA 5022.

**MBA 532. MANAGERIAL ECONOMICS**
Three credits
Problems of the firm and how to solve them. Price and output determination with analy-

sis of cost and demand functions in markets of various types as well as decision-making
under conditions of uncertainty and over time. Emphasis is given to firm's role in the glob-

el economy and the theory of international trade. The course will deal with the application
of economic theory to business practice.
Prerequisite: MBA 500 (co-requisite), MBA 5031, MBA 5032.

**MBA 540. FINANCIAL MANAGEMENT**
Three credits
A survey of the tools and techniques currently employed by financial decision makers when
evaluating organizational performance and developing future courses of action. Emphasis
will be placed upon working capital management and capital budgeting techniques.
Prerequisite: MBA 500 (co-requisite), MBA 5011, MBA 5012, MBA 5013.

**MBA 560. FINANCIAL AND MANAGERIAL ACCOUNTING**
Three credits
A basic understanding of both internal and external accounting principles and techniques
with appropriate application to decision models. Financial and managerial accounting con-

cepts and issues are considered from the viewpoint of the report users.
Prerequisite: MBA 500 (co-requisite), MBA 5011, MBA 5012.

**MBA 580. BUSINESS ISSUES IN A DYNAMIC ENVIRONMENT**
Three credits
This course introduces students to the varied diverse stakeholders who impact directly and
indirectly on business policy and public policy formation. Included is analysis of the ways
in which the interests of the customer, the creditor, the shareholder, the employee, the gov-

ernment, and the society interface with optimal decision-making by business organizations.
The course utilized current business issues to provide students with the opportunity to
think and write critically and entrepreneurially, while being sensitive to ethical, global, and
policy dimensions.
Prerequisite: MBA 500 (co-requisite), MBA 5023.

**TIER IV - ELECTIVE COURSES**

**MBA 513. OPERATIONS MANAGEMENT**
Three credits
This course presents a variety of quantitative tools applicable to both routine and non-rou-
tine business decisions. This course teaches students how to obtain information from data, and how to build models for making decisions. The goal of the course is to sharpen the student’s ability to approach business-related problems by integrating methods and applications. The focus of the course is on understanding the meaning of both the numbers and the methods, not necessarily on the manual computations. Topics may include (but are not limited to) decision making under uncertainty, supply chain and materials management, forecasting, and statistical process control. The emphasis of the text is on data analysis, modeling, and spreadsheet use in statistics and management science.

Prerequisite: MBA 512 or equivalent.

MBA 516. ADVANCED TOPICS IN OPERATIONS MANAGEMENT Three credits
This course will address select advanced topics in advanced operations management. The goal of the course is to enhance the student’s ability to approach business-related problems by integrating advanced methods and applications. The focus of the course is on understanding the meaning of both the numbers and the methods, not necessarily on the manual computations. Topics may include (but are not limited to) simulation modeling in Microsoft Excel, optimization modeling and applications, stochastic modeling and queuing theory applications, and inventory management and modeling. Course activities may include case analyses, research, application of advanced techniques, and/or utilization of various information technologies.

Prerequisite: MBA 512 or equivalent.

MBA 526. ADVANCED TOPICS IN MARKETING Three credits
This course will address select advanced topics in marketing. Topics will include business-to-business marketing, consumer behavior, international marketing, new product development, promotion management, and other current issues.

Prerequisite: MBA 520.

MBA 527. E-BUSINESS FOR MARKETERS AND ENTREPRENEURS Three credits
This course examines the core business areas of marketing and entrepreneurship as they relate to an e-Business strategy. It focuses on e-Business multi-channeling that fuses digital services with retail channels to meet the needs of marketers and entrepreneurs. The major strategic concepts of the e-Business paradigm will be discussed along with analyzing the possible advantages and disadvantages. Class participation will center on the insightful analyses of new ways to use technology to become more profitable. Students will demonstrate skill in creating a full online e-Business platform using HTML, JavaScript, and XML coding.

Prerequisite: MBA 520.

MBA 536. ADVANCED TOPICS IN INTERNATIONAL BUSINESS Three credits
This course will deal with how and why the world’s countries differ. It will address select topics in International Business. The topics have been chosen to emphasize recent global changes and development. The course will deal with the functions and forms of the international monetary system. It will examine the strategies and structures of international businesses. The implications of international business for International managers, and for
their organization’s strategy, structure, and functions. Our objective is to acquaint the student with the advanced topics in global environment of international business policy that underlies much business analysis and decision-making.
Prerequisite(s): MBA 500 (co-requisite), MBA 5033.

MBA 537. GLOBAL BUSINESS EXPERIENCE Three credits
This course is a combination of readings, research, and direct experience. The course provides an overview of a Western European Society. A ten-day field trip in Western Europe is a major learning experience of the course. Site visits are made in a number of cities in European countries. Site visits include Cities, Regions, and Business and travel centers. Arrangements for travel are made during the summer and fall, and travel in the spring. The purpose of the course is to create a global learning experience using Western Europe as a medium to facilitate the student’s understanding of the global business environment.
Prerequisite: MBA 500 (co-requisite).

MBA 545. INVESTMENT AND PORTFOLIO MANAGEMENT Three credits
This course offers a study of advanced methods of security analysis and valuation, including derivative products. Additionally, asset allocation models are examined, with special focus upon portfolio construction and management, including Modern Portfolio Theory. Also analyzed are explanatory theories of market behavior and their efficiency.
Prerequisite: MBA 540

MBA 546. ADVANCED TOPICS IN FINANCE Three credits
This course will address select advanced topics in finance. Topics include, but are not limited to, financial markets and institutions, the theories and strategies of derivatives, organizational risk management and insurance, and financial modeling.
Prerequisite: MBA 540

MBA 553. ADVANCED LEADERSHIP THEORY Three credits
This course introduces students to advanced leadership theory and application. Students engage in analysis of the various leadership styles. Course content gives the student the knowledge required for effective and efficient organizational decision-making. There is a strong emphasis on recognizing assumptions and limitations of these models and the interpretation of results. Opportunities are given to integrate course material with personal leadership experiences. Emphasis is placed on the student’s personal leadership development using a series of self-assessment instruments.
Prerequisite(s): MBA 500, MBA 5021.

MBA 554. ORGANIZATIONAL DIAGNOSIS, DEVELOPMENT, AND CHANGE Three credits
Organizational Diagnosis, Development and Change explores complex organizations as dynamic organisms in need of constant care and attention. Topics included in the course will enable individuals interested in such OD activities to maintain the composure of the organization through times of hyperchange so that continuous improvement and total quality management can be sustained without losing the competitive edge of the organization.
Prerequisite(s): MBA 500, MBA 5021.
MBA 555. HUMAN RESOURCES LAW AND COMPENSATION  Three credits
This course offers a survey of best practices in the area of human resources, with particular attention toward responding to the legal and financial environments. Students will learn to analyze the impact that statutory, administrative, and case law have upon human resource management. Design, management, and administration of compensation methods, as well as recent developments in benefits packages, are covered.
Prerequisite: MBA 580

MBA 566. ADVANCED TOPICS IN ACCOUNTING  Three credits
This course will address select advanced topics in accounting. Topics include corporate financial reporting, financial and tax planning, accounting policies and practices, advanced management accounting, and other current issues.
Prerequisite: MBA 560.

MBA 576. MANAGING HEALTH CARE SYSTEMS  Three credits
This course offers an in-depth examination of the U.S. Health Care System. Topics covered include a brief history of health care services and issues which influence the current health care delivery system. Also covered is the organization and financing of health care systems such as hospitals, physician group practices, managed-care organizations and long-term care facilities. Additional topics include the health service workforce and measuring outcomes of the delivery system.
Prerequisite: MBA 5021; Co-requisite: MBA 500.

MBA 577. ADVANCED TOPICS IN HEALTH CARE MANAGEMENT  Three credits
This course will address select advanced topics in health care management. The purpose of the course is to provide the student a deeper understanding of how applying managerial techniques can improve the delivery of high quality healthcare. Topics may include (but are not limited to) health law, epidemiology, marketing, finance, comparative health care systems and public policy. Course assignments may include case studies, research and field interviews of acknowledged experts in the field.
Prerequisite: MBA 5021; Co-requisite: MBA 500.

MBA 585. CORPORATE ENTREPRENEURSHIP  Three credits
This course presents an exploration of corporate entrepreneurship in its many forms and manifestations. This course will cover companies that exemplify corporate entrepreneurship philosophies and practices. In addition to entrepreneurship, the course will deal with innovation, venturing, and new product development. Topics will include processes, management practices, organizational culture, 23 current practices and trends, and opportunities within a corporate environment.
Prerequisite: MBA 580.

MBA 595-596. INDEPENDENT RESEARCH  Three credits each
Independent study and research for advanced students in the field of the major under the direction of a staff member.
MBA 598. TOPICS  Three credits
Special topics in a major field. This course will be offered from time to time as interest and demand justify it.

TIER V - CAPSTONE COURSES

MBA 591. STRATEGIC MANAGEMENT AND POLICY  Three credits
The capstone course integrates a business approach to strategic decision-making which encompasses the business functions of marketing, production, finance, and human resource management. The course will facilitate both conceptual and experiential integration of functional concepts and techniques from the core courses as well as enhance the written and oral communication skills of students.
Prerequisite(s): 24 MBA credits of Core plus Electives.

MBA 592. ADVANCED PROJECTS IN BUSINESS  Three credits
This course requires that the student perform advanced research and writing in his or her concentration area. Such research must be approved by the instructor in advance and shall be based upon (a) Independent Study; (b) Internship/Consulting; (c) Community Service; or (d) Mentorship. All work is monitored by the instructor, and students are required to offer a brief oral presentation on their work to faculty and peers. In addition, a written paper or other approved product will be prepared and submitted by the student. It is expected that papers and other course products will meet the quality standards for publication by the Jay S. Sidhu School of Business and Leadership.
Prerequisite(s): 24 MBA credits of Core plus Electives.
CREATIVE WRITING

Bonnie Culver, Ph. D., Program Director
J. Michael Lennon, Ph. D., Program Co-Founder

MASTER OF ARTS IN CREATIVE WRITING (LOW RESIDENCY)
MASTER OF FINE ARTS IN CREATIVE WRITING (LOW RESIDENCY)

ACCREDITATION
In October, 2004, the Pennsylvania Department of Education and the Middle States Association of Schools and Universities approved the Wilkes proposal for the M.A. program. The University graduated its first class in June 2006. In June, 2007, the Pennsylvania Department of Education approved the addition of the Master of Fine Arts to the graduate creative writing degree offerings at Wilkes University.

ADMISSION
Students will be accepted into the Master of Arts in Creative Writing based almost entirely upon the required writing samples - the application essay and creative writing sample. Students applying to this program should hold a bachelor’s degree from an accredited college or university. However, since the M.A. is a degree in creative writing and not an English degree, students without a bachelor’s may apply. No GREs are required. Applicants must submit the following for consideration:

• Completed Application.
• $35 non-refundable application fee.
• Official transcript of all college work, undergraduate and graduate.
• Two letters of recommendation, from someone who knows your writing and work ethic (optional).
• Creative writing sample...A 15-25 page writing sample from any genre or genres of published/unpublished work that best demonstrates your creative ability.
• Essay response...A 5-10 page response to the following three questions:
  1. Where are you in time and how did you get there?
  2. What are you going to do in the program?
  3. What will you do with your program accomplishments following graduation?
• Resume, including creative citations.

Students may enter the program in either the January or June residency. Project semesters begin following each residency and continue until the next residency (approximately 6 months). Applicants for Graduate Assistantships must submit two letters of recommendation.

Students interested in the Master of Fine Arts must first complete the Master of Arts in Creative Writing. Students in the existing M.A. may apply for admission into the M.F.A. no earlier than the last term of the M.A.
TRANSFER CREDITS
The Master of Arts in Creative Writing addresses the life, craft, and business aspects of becoming and remaining a professional creative writer. Because much of the curriculum design is tailored to the individual student and his/her thesis project and because the program offers no electives, the M.A. does not accept transfer credits from another institution.

DEGREE REQUIREMENTS
(30 credit hour minimum)
The Master of Arts in Creative Writing is a 30-credit, low-residency program in five genres: fiction / poetry / screenwriting / playwriting / creative nonfiction.

(48 credit hour minimum)
The Master of Fine Arts in Creative Writing (low residency M.F.A.)
Students complete the required 30 credit hour minimum and the Master of Arts in Creative Writing plus 18 additional credit hours to earn the Master of Fine Arts degree.

Certificate Option (15 credit hours)
A certificate in one genre is also available. Students complete the first 15 credits of the Masters program. This option is suited for:

- students who do not wish to pursue the master of arts, but wish to explore writing;
- students who do not possess a bachelor's degree, but demonstrate talent in writing;
- students who are conditionally admitted to the program.

After completing nine credits hours, students in the certificate program may apply for enrollment in the Masters program. The credits in the certificate program automatically transfer into the Masters program.

All graduate creative writing programs include two components...
Residencies and Project Semesters — which are outlined below. Specific credit requirements for the degree and certificate follow this discussion.

1. RESIDENCIES are eight-day-long on-campus courses that are usually team taught and include required and optional faculty lectures, readings, performances, class discussions, and panel discussions as well as student readings. This is a time to plan project work and meet with instructors and the program director. The following courses are residencies: ENG 501R, ENG 510R, ENG 516R, and the capstone, ENG 525R. Minimum required: 4, including capstone. The M.F.A. requires one additional residency – ENG 616R.

2. PROJECT SEMESTERS are writing and reading project work times, beginning with foundation courses in two genre areas and ending with the final project master thesis semester. The following courses are project courses: ENG 502, ENG 503, ENG 504, ENG 505, ENG 506, ENG 512, ENG 514, and ENG 520. Minimum project semesters: 3; Courses deliv-
ered online. The Master of Fine Arts requires the following additional online courses - ENG 612, ENG 614, and ENG 620.

MA IN CREATIVE WRITING PROGRAM GOALS

THESIS REQUIREMENTS
To satisfy the Masters of Arts in Creative Writing thesis requirement:
*Students, graduating with a Master of Arts in Creative Writing, will produce and present a full-length text and support materials that demonstrate the mastery of requisite standards, processes, and procedures for bringing that project into its appropriate public venue.*

THE WRITER’S LIFE
Acknowledging and understanding the spiritual, psychological, physical, discipline, habits, and support mechanisms required for continued sustenance for the writing life.

At the completion of this program, students will be able to:

1. Articulate the strengths and weaknesses of and discriminate between the archetypal models of writerly lives as they build a writing life plan of their own design.
2. Articulate the strengths and address the weaknesses of the work of their peers, as well as their own work and their writing process.

CRAFT AND TECHNIQUE
Demonstrating the mastery of one’s major area of study through the practice of writing in various forms including the demonstrable and the proven ability to critique one’s own work and that of others honestly and vigorously.

Most creative writing programs spend most or all of their assigned time in workshops and in one-on-one critiques that emphasize this area of study. The Wilkes program also spends a great deal of time on studying how a text “works,” whether it be a classic model, your work, or a peer’s draft. This study asks you to dissect texts and break them down into their basic elements. To become a better writer, you must learn how to objectively analyze and critique a wide range of texts in your genre. How did the author make that text work on me as a reader and within the context of the realm of possibilities within the genre itself? You will be introduced to the basic elements of all literature in English 501 and continue to study literature in more depth as you advance through the program. Additionally, faculty in each genre will assist you in understanding the tradition and history of your chosen genre so that you will be better educated in making your own elemental choices in writing.

At the completion of this program, students will be able to:

3. Describe the breadth and depth of knowledge of the historical context and tradition of the range of forms, conventions, and styles within their selected major and minor areas.
4. Demonstrate competency in the technology of their major genre area.

ART DELIVERY METHOD
Studying the multiple and appropriate pathways in which one's creative work becomes public, including knowing the research methods, business practices, and genre-specific conventions that writers need to obtain notice of and appreciation for their work.

This program strand addresses the business, economic, and genre-specific opportunities for your work. Faculty panels from each genre will introduce this idea to you in the first residency. As you move through the program, the faculty and your mentors will work with you to understand both the business practices and the appropriate pathway for your work. **At the completion of this program, students will be able to:**

5. Understand the legal and ethical standards and the practical issues of their profession, and demonstrate that knowledge through the residencies and portfolio work of the program.
6. Speak and write to people in professional venues of their genre in a confident manner.

CAPSTONE REQUIREMENTS
The Master of Arts in Creative Writing Capstone is where students have a chance to demonstrate their full mastery of their major area that meet all of the student learning outcomes listed above. A unique quality of the Wilkes M.A. is how that work comes together in the final capstone. All capstones, no matter which genre a graduate selects, must have both a written and spoken component and must also meet specified graduation criteria. The order for the final thesis and some samples are included in other lessons in this section of ENG 520. **ALL THESEMS MUST BE PRESENTED IN STANDARD INDUSTRY-SPECIFIC FORMATS PER GENRE.**

The following are the genre specific requirements for the Master of Arts in Creative Writing capstone:

POETRY
During the final residency (ENG 525R) poets will present a formal reading from their finished poetry chapbook or poetry collection. The formal reading will be limited to twenty minutes, followed by ten to fifteen minutes for Q & A from faculty, mentors, and other students. **Some or all work must be recited.**

THESIS/Support materials will include:

- THESIS—(24-50 pp., chapbook; 50+ pp., collection)
- a query letter (1-2 pp.)
- Writing Self-Analysis Essay, including Writing Life Plan
- jacket blurb (artist’s statement) (1 p.)
- Final annotated bibliography of all readings leading to the thesis project, from ENG 512-520.
CREATIVE WRITING

FICTION
During the final residency (ENG 525), fiction writers will present a formal reading from their completed full-length manuscript, which will be either a novel or short story collection. The formal reading will be limited to twenty minutes, followed by ten to fifteen minutes for Q & A from faculty, mentors, and other students.

THESIS/Support materials will include:

- THESIS—(Novella, novel, or short story collection)
- a query letter (1-2 pp.)
- Writing Self-Analysis Essay, including Writing Life Plan
- jacket blurb (bio) (1 p.)
- Book proposal
- Final annotated bibliography of all readings leading to the thesis project, from ENG 512-520.

PLAYS
Playwrights will work through the pre-residency with an assigned director to cast and to prepare the play for a formal staged reading that will be held during the ENG 525 capstone or off-campus at a designated theatre. Experienced actors, appropriate to the work, will be utilized. Playwrights will rehearse with the cast and meet with the director to prepare for the reading, no less than once before the staged reading. Playwrights will be prepared to answer questions about their work and processes, following the staged reading.

THESIS/Support materials will include:

- THESIS—(Full-length play, collected one-acts, or performance piece)
- a query letter (1-2 pp.)
- playwright’s bio (1 p.)
- Writing Self-Analysis Essay, including Writing Life Plan
- Play synopsis (1-2 pp.)
- Final annotated bibliography of all readings leading to the thesis project, from ENG 512-520.

SCREENPLAYS
Screenwriters will work with their writer mentors in the pre-residency to prepare their script for a table reading during their final residency (ENG 525R). Readers will include actors, cohort members, and other available readers. Screenwriters must be prepared to present a “pitch” to a film producer, agent, or director before the reading and to answer process questions, following the table reading.
THESIS/Support materials will include:

- THESIS—(Full-length screenplay, collected feature shorts
- the “pitch”
- a query letter (1-2 pp.)
- Writing Self-Analysis Essay, including Writing Life Plan
- Screenplay treatment (2-4 pp.)
- Final annotated bibliography of all readings leading to the thesis project, from ENG 512-520.

CREATIVE NONFICTION
During the final residency (ENG 525), fiction writers will present a formal reading from their completed full-length manuscript, which will be either a novel or short story collection. The formal reading will be limited to twenty minutes, followed by ten to fifteen minutes for Q & A from faculty, mentors, and other students.

THESIS/Support materials will include:

- THESIS—(Full-length manuscript or collection of short works)
- a query letter (1-2 pp.)
- Writing Self-Analysis Essay, including Writing Life Plan
- jacket blurb (bio) (1 p.)
- Book proposal
- Final annotated bibliography of all readings leading to the thesis project, from ENG 512-520.

COURSE SEQUENCE

Degree Requirements | 30 credits (minimum)

<table>
<thead>
<tr>
<th>First Residency</th>
<th>First Project Semester</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 501R</td>
<td>The Professional Writer</td>
<td>3</td>
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Two of the following foundation courses, one for certificate students

| ENG 502 | Writing Fiction | 3 |
| ENG 503 | Writing Poetry | 3 |
| ENG 504 | Writing Screenplays | 3 |
| ENG 505 | Writing Stageplays | 3 |
| ENG 506 | Writing Creative Nonfiction | 3 |

Second Residency

| ENG 510R | Planning the Writing Life | 3 |

Second Project Semester

| ENG 512 | Genre & Context | 3 |
| ENG 514 | Writing Projects | 3 |
MFA IN CREATIVE WRITING GOALS

To satisfy the Masters of Fine Arts in Creative Writing degree requirements:

Students, graduating with a Master of Fine Arts in Creative Writing, will revise their Master of Arts thesis to produce a publishable manuscript or begin a new project, building upon the strengths of the M.A. thesis. Additionally, they will produce and present a literary analysis paper, complete a term-long internship in teaching or publishing, and submit a final portfolio that chronicles their work in the entire program, all of which demonstrate their understanding and utilization of their literary tradition and the best practices of teaching pedagogy or the publishing industry.

The Analysis Paper
Acknowledging and understanding the diverse forms, styles, and ongoing tradition of the student’s chosen literary genre.

At the completion of this program, students will be able to:
1. Describe the breadth and depth of knowledge of the historical context and tradition of the range of forms, conventions, and styles within their selected major area.
2. Demonstrate an understanding of the literary tradition and where their own work lives within that literary spectrum.

The Teaching/publishing Internship
Utilizing the multiple and appropriate teaching methodologies in beginning, workshopping, critiquing, and sustaining the creative work of others, including knowing the diverse strategies, best practices, and genre-specific exercises that lead to the creation of student work.

At the completion of this program, students will be able to:
3. Demonstrate an understanding of how best to teach or work in a variety of artists-in-residency or publishing venues.
4. Demonstrate competency in the best practices of teaching creative writing or in the business of supporting writers and their work in the publishing industry.
THE FINAL M.F.A. Portfolio

Demonstrating the understanding of the best practices of effective teaching and sustaining creative work, in various ways, including the demonstrable and the proven ability to critique and facilitate the creative work of others honestly and vigorously while continuing to produce one’s own creative work.

FINAL M.F.A. portfolio will include:
1) revised M.A. thesis (or new polished project);
2) 30-35 page critical paper;
3) copies of materials developed, written in internship;
4) final annotated bibliography of readings from entire program;
5) final summary of program work vis a vis a self-analysis paper.

At the completion of this program, students will be able to:
5. Understand the legal and ethical standards and the practical issues of the teaching or publishing profession, and demonstrate that knowledge in the residencies and portfolio work of the program;
6. Demonstrate competency in the best practices of creative writing pedagogy or the business practices of the publishing industry;
7. Demonstrate advanced writing competency in their own creative work;
8. Demonstrate an advanced knowledge of contemporary literature in their area of study in an oral and written presentation of their analysis of assigned texts.

COURSE DESCRIPTIONS FOR M.A. IN CREATIVE WRITING

First Residency
ENGLISH 501R. THE PROFESSIONAL WRITER
Three credits | Residency Course
An introduction to the Writer’s life, tools, craft, and the basic elements of the five genres. Students begin with pre-residency readings and exercises. Course is completed in residency. Available only at January and June residency. Capped at 25 students per cohort group.

First Project Semester
You will select any two of the following foundation courses. Each of these courses will be delivered online by faculty from each genre in the Project semesters.

ENGLISH 502. WRITING FICTION
Three credits
This is an intermediate course in writing fiction. You will study, explore, and practice the process, form, and discipline of writing fiction. You will write a variety of short fiction samples that demonstrate your understanding of basic fiction elements, point of view, and narrative style.

ENGLISH 503. WRITING POETRY
Three credits
This is an intermediate course in writing poetry. You will study, explore, and practice the
process, form, and discipline of writing poetry. You will write a variety of poems that
demonstrate your understanding of basic poetic elements, diverse forms, and poetic style.

**ENGLISH 504. WRITING SCREENPLAYS**  
Three credits  
This is an intermediate course in writing screenplays. You will study, explore, and practice the
process, form, and discipline of writing screenplays. You will write a variety of scenes that
demonstrate your understanding of basic film design, diverse forms, and cinematic styles.

**ENGLISH 505. WRITING PLAYS**  
Three credits  
An intermediate level course in writing plays. You will explore, study, and practice the
process, forms, and discipline of writing all forms of stageplays. You will write a variety of scenes and short plays that demonstrate your understanding of basic stage elements, theatrical conventions, and dramatic forms.

**ENGLISH 506. WRITING CREATIVE NONFICTION**  
Three credits  
This is an intermediate level course in writing creative nonfiction. You will explore, study, and practice the process, forms, and discipline of writing all forms of creative nonfiction. You will write a variety of short pieces that demonstrate your understanding of basic narrative elements, point of view, factual research, and narrative prose styles. Second Residency.

**ENGLISH 510R. PLANNING THE WRITING LIFE**  
Three credits | Residency Course  
You create project outlines and writing proposals for drafting new work in your major field of study area. Course is team-taught in residency by a team of faculty members from all disciplines in a series of modules including: research, fair use, copyright introduction, arts delivery methods, intro to oral interpretation for writers. You will attend lectures and required readings throughout the week.

**Second Project Semester**

**ENGLISH 512. GENRE AND CONTEXT**  
Three credits  
You will read, analyze, critique, and discuss in-depth your agreed upon reading list with a
genre specialist mentor writer and cohort groups. Individually you will keep a dialectical notebook and write your own annotated bibliography of your own reading list that has been approved by the writer mentor. Working in small groups, you will build an anthology and write its introduction to that work that will demonstrate your competency level of analysis in one genre area as well as your mastery of the elements and craft in their major genre area. Final analysis and anthology introductions will be presented at following residency.

**ENGLISH 514. WRITING PROJECTS**  
Three credits  
An upper-level drafting semester where you will begin drafting your thesis project and
demonstrate your competency and understanding of the form and discipline of that genre. The work and your plan for completing your thesis will be presented in the following res-
idency course. Taken in conjunction with the ENG 512 Genre and Context course.

Third Residency
ENGLISH 516R. FINAL PROJECT/THESIS PLAN Three credits | Residency Course
An upper-level course in critique, analysis, and self-evaluation. During this intense residency week, you will stand and deliver your own analysis of your reading list, an analysis and critique of your own work, and present your work plan for the thesis project semester that must be approved by mentoring faculty. Students will attend multiple faculty and student presentations within each of their genres addressing topics such as; writing a proposal for their writing semester, continued work in the business of writing, and oral and written presentation of work. You will meet one-on-one with your faculty mentors and with the program director to gain full approval of your writing proposal by week’s end.

Third Project Semester
ENGLISH 520. FINAL PROJECT Six credits | Thesis
The M.A. thesis project semester is an intense immersion in the writing, revision, and completion of a full-length manuscript, required supporting documents, and a plan for a genre-specific public presentation during the capstone residency. You will work closely one-on-one with a mentoring faculty member through e-mail and hardcopy draft exchanges.

Final Residency
ENGLISH 525R. MASTERS CAPSTONE Three credits | Residency Course
The final presentation and public reading of each M.A. students’ completed writing project. Each work will receive a written critique and final reading by an agent, editor, producer, or director. This residency week will include several seminars and workshops aimed at moving the individual project towards its appropriate public venue. You will work with a mentoring faculty team throughout the week.

Optional
ENGLISH 530. CONTINUOUS REGISTRATION One - Three credits
This course allows you to continually register where needed for further revision in preparation of your final project. You must continually register until revisions are complete or you complete the required capstone.

COURSE DESCRIPTIONS AND SEQUENCE FOR MASTER OF FINE ARTS

RESIDENCY #1
Students will begin the M.F.A. coursework during the Master of Arts Capstone residency (ENGLISH 525R). Students begin that work by attending additional modules taught by literature PhD faculty and meetings with all faculty during that residency. Students will receive a formal reading list from the faculty and develop their analysis plan in those formal meetings and discussions with faculty.
CREATIVE WRITING

PROJECT TERM #1 -- ENGLISH 612 - Literary Analysis
Reading, analyzing, and preparing an extensive graduate paper that demonstrates the student’s understanding of the history, tradition, various forms, and diverse styles of contemporary literature in one genre-fiction, creative nonfiction, film, drama, or poetry. Reading list will be provided by the faculty and student’s essay approach must be approved by faculty mentor and the Program Director (6 credits, online program).

ENGLISH 614 - REVISION TERM.
Students will have the opportunity to continue to work with a faculty mentor to revise their creative thesis and prepare it for publication/production OR begin a new project, built upon the strengths of the Master of Arts thesis (3 credit hours).

RESIDENCY #2 -- ENGLISH 616R - WRITING IN EDUCATION/PUBLISHING
Students will be required to make a formal paper presentation during this residency to complete ENG 612. Students will complete work generated by team-taught modules to prepare them for either a teaching/publishing internship. They will meet with peers, mentoring faculty and create and deliver mini-lesson plans for proposed courses or a study plan in publishing. Such work must be drawn upon the best practices of the pedagogy of teaching creative writing or working in publishing in a variety of settings. Students will continue to sharpen their own oral and writing skills as they build an acceptable syllabi, course materials/internship goals for an internship and sample lessons/work plan by week’s end. By week’s end, students will have an internship experience and mentor assigned to them (3 credits).

PROJECT TERM #2 -- ENGLISH 620 - WRITING IN EDUCATION/PUBLISHING
INTERNSHIPS
Students will be required to teach creative writing in one or several various educational venues from a series of artists-in-the schools residencies to for-credit adjunct/full-time course work OR complete an internship with a magazine, small press, or literary agency. Students will document their work through student portfolios and will be supervised by a faculty mentor. In whatever experience students select, they must demonstrate student contact hours of no less than 40 hours per term for teaching and 20 hours per week for publishing internships. Students will present a final analysis of their teaching experience in writing and orally at term’s end (6 credits).
Earth and Environmental Sciences graduate courses may be taken by special students or may be applied toward graduate degrees offered by other departments. Students planning to apply these credits toward degree programs should secure the approval of their academic advisor prior to inclusion in their course of study.

**COURSE DESCRIPTIONS**

**EARTH & ENVIRONMENTAL SCIENCES 491. PRACTICUM**
Three to six credits

**EARTH & ENVIRONMENTAL SCIENCES 498. ADVANCED TOPICS**
One to three credits

Selected topics covering a variety of atmospheric, hydrospheric, and lithospheric processes and environmental management issues. May be repeated for credit.

Prerequisite: Graduate standing.
THE DOCTORAL DEGREE IN EDUCATIONAL LEADERSHIP (ED.D.)

The Doctoral Degree in Educational Leadership (Ed.D.) is designed as a post-master’s program that capitalizes on the existing strengths of the Graduate Education Department, namely educational technology and leadership. Based on these strengths, Wilkes University developed the Ed.D. program with three majors that share a common core. The majors include Educational Administration (including both K-12 superintendent’s certificate), Higher Education Administration and Educational Technology with PA Certification as an Instructional Technology Specialist.

The core courses (common to all majors) have been created to meet the challenges faced by educational leaders. The courses were designed in concert with the mission of the Graduate Education Department – to produce educational leaders in classrooms and administration. The program is also built around a core of applied research embedded in courses that provide continuous opportunities for current and future educational leaders to apply knowledge gained in the degree program to improve education for all students.

It is anticipated that each “cohort” will take an average of 12 credits per year – allowing participants to complete necessary coursework in approximately 4 years – although students may choose to expedite the process by taking additional credits during summers. The dissertation and its defense are the capstone project that follows the completion of all coursework. Students are also required to engage in both qualifying and comprehensive examinations that will be designed to demonstrate the depth of knowledge gained throughout the program.

Admission to the doctoral degree program is based on several indicators of academic ability including prior academic performance, a designated cut score based on performance on the MAT, professional level references, a successful interview with graduate education administrators and faculty, a satisfactory rating on an extemporaneous professional writing sample, and a passing score on a qualifying examination. A strong cohort enrollment strategy is used to build classes on an annual basis.

Students will be assigned to a Leadership Development Team (LDT) consisting of students admitted in their cohort. The LDT is made up of students pursuing the three program majors led by a faculty mentor, who will serve as the students’ advisor.

More specific information about the program, its requirements and application procedures can be found on-line at www.wilkes.edu under Academics > Graduate & Professional > Doctorate of Education.
MASTER OF SCIENCE IN EDUCATION

MISSION
The mission of the Graduate Education Programs at Wilkes University is to provide the educational community with opportunities to become leaders in classroom instruction and in the administration of schools. As such, the Graduate Education Program seeks to promote the highest levels of intellectual growth and career development through a collaborative environment that supports teaching in a diverse learning environment, while valuing commitment to the educational communities it serves.

PURPOSE
Graduate study in Education is offered primarily to enable teachers to enhance their preparation to become educational leaders. Each program is designed to broaden knowledge in the foundations of education as well as focus on a specific area of advanced training. The master's degree program in Education is offered with majors in Classroom Technology, Educational Development and Strategies, Educational Leadership, Instructional Technology and Special Education. In addition, teachers holding secondary certification in a specific content area who want to expand their expertise in that content area can choose to major in one of the Secondary Education programs. These programs are available in Biology, Chemistry, English, History, and Mathematics. Additional programs have been added recently. They are Early Childhood Literacy, 21st Century Teaching and Learning, and School Business Leadership. All programs lead to a Master of Science in Education degree.

Wilkes University offers three graduate programs that lead to an additional certification through the Pennsylvania Department of Education (PDE). The Master of Science Degree in Educational Leadership qualifies an individual for K-12 principal certification. The Master of Science Degree in Instructional Technology qualifies an individual for Pennsylvania K-12 Instructional Technology Specialist certification. The Master of Science Degree in Special Education qualifies an individual for Pennsylvania certification in Special Education. All program requirements for the University as well as for PDE must be met in order for the graduate to be eligible for certification.

Another new program, although not a master's degree, is the Letter of Endorsement in Teacher Leadership and Instructional Coaching. This 12-credit program leads to a Letter of Endorsement that teachers can use to validate that they have advanced knowledge and skill in the area of teacher leadership and instructional coaching.

As part of the graduate education programs, Wilkes University houses a Regional Computer Resource Center (RCRC), which provides a computer laboratory, as well as an extensive educational software library. The RCRC is used primarily by students in the M.S. in Instructional Technology and Classroom Technology degree programs, but also serves as a regional center for technology workshops for teachers. Services include training for preservice and in-service K-12 teachers in current topics via short workshops and seminars.
EDUCATION

SPECIAL FEATURES OF THE PROGRAM
The Master of Science in Education degree programs in Classroom Technology, Educational Development and Strategies, Educational Leadership, Instructional Technology and Special Education are offered at off-campus sites as well as on the Wilkes campus. The Classroom Technology, Early Childhood Literacy, 21st Century Teaching and Learning, and School Business Leadership programs are offered fully online. The Educational Leadership Program is offered in a low-residency/online format. Secondary Education graduate programs are available on-campus only. Graduate Education programs are arranged so that students may pursue the degree on a full or part-time basis. During the academic year, late afternoon and evening classes are offered to enable full-time teachers to take courses toward fulfillment of degree requirements. Credits may also be earned during summer sessions, with many courses being offered during daytime hours. Although Wilkes is not a state university, graduate Education courses are offered at the State System of Higher Education (SSHE) tuition rate.

On-line formats of many courses are also available. On-line sections of courses are published in the Wilkes University Graduate Education Schedule. Performance Learning Systems also offers on-line courses. Additional Wilkes on-line courses are available for registration directly through partner organizations, Performance Learning Systems, Inc. (PLS) and Learning Sciences International (LSI). Visit www.plsweb.com for information on PLS courses and www.embeddedlearning.com for LSI courses.

ADMISSION
For admission to graduate study in education, the applicant must have a baccalaureate degree from an accredited institution, with an appropriate major and, for programs that require it, a Pennsylvania teaching certificate. Although no minimum undergraduate grade point average is a requirement for admission, it is expected that candidates for admission shall have maintained good or above-average performance during their undergraduate years and shall exhibit evidence of intellectual and temperamental fitness for graduate study. In the Educational Leadership Program, academic performance is a measure of both prior course work and performance on the Miller Analogies Test. Students deficient in any phase of these requirements may, at the discretion of the academic department, and the Dean of Graduate Studies and Continued Learning, be granted provisional or conditional admission. Deficiencies must be made up satisfactorily before full admission to graduate study in education will be granted. A Master of Science degree-seeking student must complete the following process to be considered for admission to the graduate program in education:

1.) Submit a Wilkes University Graduate Application for Admission,
2.) Pay the required one-time, non-refundable application fee,
3.) Submit two letters of recommendation,
4.) Submit a copy of your teaching certificate for all programs except Instructional Technology and School Business Leadership.
5.) Submit official transcripts from all of the undergraduate universities attended while obtaining the bachelor's degree, including teacher certification and, in addition, any master's degrees earned. Also send any recent graduate transcripts you want reviewed for possible transfer credits concurrent with current policy.
Students applying to the Special Education program are also required to submit a copy of their Pennsylvania Instructional certificate in early childhood, elementary or a secondary area as evidence they are eligible for program entry. Upon receipt of all required documents the Dean of Graduate Studies and Continued Learning will review files for acceptance. Accepted students are assigned an advisor to work with as they progress through the program.

Teachers are allowed to apply for admission as a special non-degree graduate student but must complete the same Wilkes Application for Graduate Admission, pay the required application fee and submit proof of their baccalaureate degree (copy of teaching certificate or undergraduate transcript) with their non-degree application. The University’s general rule for non-degree students limits the number of credits a student can take to six. However, teachers can take non-degree courses for professional development to keep abreast of the latest trends in education and for ACT 48 credit with no limit to the number of Education courses they may take. Although non-degree students may change their status to degree-seeking, courses they have taken will only count in the degree if they align with the specific curriculum in the Master’s Degree they choose to obtain.

Non-degree students who wish to change their status and enroll in a master’s degree program must submit a new, updated Wilkes graduate application form as a “degree-seeking” candidate and then follow the remaining procedure for admissions outlined above, sending in all the appropriate documents. They need not repay the application fee. Students must complete all courses required for the degree as outlined in the Bulletin.

PROGRAM OF STUDY

Students are encouraged to consult with their advisor to plan their program of study. At the time of acceptance students are sent a Program Plan with which to document their progress through the program. It is highly recommended that students keep track of the courses they take on the Program Plan and contact their advisor with any questions they may have. It is the responsibility of the student to be sure they are taking the correct courses for their major. Students should follow the requirements outlined on the Program Plan or in the Graduate Bulletin to be sure they will meet the requirements for graduation. Students wishing to transfer credits into their program should follow the procedure outlined in the “Transfer Credits” section, listed below.

Students are expected to maintain a GPA acceptable for graduate level work and progress. A graduate student who accumulates two grades below 3.0 in his or her graduate courses will be placed on probation. A student earning a third grade below 3.0 will be dismissed from the graduate program.

NOTE: It is the graduate student’s responsibility to register for Graduation (GRD-000-B) the same semester they enroll in the final course required for their degree. The student is encouraged to contact their advisor at the time of registration for a preliminary audit to be sure all requirements will be met. The deadline for registering for graduation is 90 days prior to the next commencement ceremony.
TRANSFER CREDITS
Students accepted into a master’s degree program may transfer a maximum of six graduate credits from an approved and accredited college or university as long as they meet all of the requirements identified in the University-wide Transfer Credits section of this document and the specific criteria below. The Dean of Graduate Studies and Continued Learning will make the final determination regarding transfer credits and whether they will count as elective credits or qualify to replace required courses. In order for courses to count as electives, they must (in general) meet the academic intent of the student’s masters program or be aligned to their respective professional assignment. Each transfer request is handled on a case-by-case basis and the student may be asked to produce a course syllabus and/or a letter justifying his/her request.

Students desiring to take courses from another college or university while enrolled in the Wilkes program must submit a pre-approval to transfer graduate credit form prior to registering for such courses. Failure to submit the proper paperwork may result in the inability to transfer those credits. All forms are available on the Graduate Education web site: www.wilkes.edu/graded under 'transfer information. An “official” transcript must be received before any approved transfer credits can be posted to your Wilkes transcript. For more information see Transfer Credits in the General Information section at the beginning of this Graduate Bulletin.

SECOND MASTER’S DEGREE
A person who has a previous master’s degree from Wilkes University, or is currently working on a master’s from Wilkes, may apply to be enrolled in a second master’s degree if the majors, programs and/or options are different. Up to twelve credits only of previous course work used to satisfy the requirements for the first degree (typically basic requirements from Areas I and II) may be applied to the second. This only applies to programs that have common courses. If no common courses exist between the two programs, students must take all of the courses in the second degree. All other bulletin and course requirements must be fulfilled. Students are encouraged to speak to the program coordinator of the new second program for advisement of courses that must be taken. A student who opts for a second master’s degree must submit a written request to the Dean of Graduate Studies and Continued Learning along with a new Wilkes graduate application form. There is no need to repay any application fees.

DEGREE REQUIREMENTS
All candidates for the Master of Science in Education degree must complete a program of at least thirty credits. See the following individual program descriptions for the specific course credit requirements for each graduate education program.

MASTER’S DEGREE PROGRAMS

CLASSROOM TECHNOLOGY (CT)  Ms. Barbara Moran
CT Program Coordinator
A candidate for the Master of Science in Education degree with an emphasis in Classroom Technology will have the option of completing all courses on-line. The candidate must
complete 30 credits consisting of two courses (six credits) in Area I Foundations of Education (one of which is ED 519: Issues, Laws and Trends in Education and one of the following: ED 510 Psychological Foundations, ED 511 Philosophical Foundations, ED 512 Social Foundations, ED 513 Comparative Foundations, ED 515 Cognition); three courses (nine credits) in Area II Professional Skills: ED 520 Using Assessment to Guide Instruction, ED 522 Curriculum and Instruction, and ED 585 Integrating Technology into the Curriculum; four technology courses (twelve credits) from Area VI: ED 526 Internet Literacy for Educators, ED 527 Authoring Systems/Instructional Design, ED 528 Using Print Media to Support Education, ED 530 Utilizing Emerging Technologies to Improve Learning; and three elective credits. Completion of the Classroom Technology degree does not fulfill the requirements for any additional teacher certification area. The intent of this program is to upgrade the technology skills of the classroom teacher.

In addition to being available on the Wilkes campus and online, the M.S. in Education with a concentration in Classroom Technology is offered at the following off-campus sites: Allentown SD, Bethlehem Area SD, Berks IU#14, Blue Ridge SD, Carbon-Lehigh IU#21, Central Columbia SD, Crestwood SD, Delaware Valley SD, Hazleton @ MMI-Freeland, Jim Thorpe SD, Manheim Twp SD, Mount Carmel SD, Northeastern Educational IU#19, Pleasant Valley SD, Pocono Mountain SD, Quakertown Community SD, Schuylkill IU#29, Tunkhannock SD and Wallenpaupack SD. For the most current listing of sites where the Classroom Technology program is available, refer to the Wilkes website.

EDUCATIONAL DEVELOPMENT AND STRATEGIES (EDS)  Ms. Renee Kotz  EDS Program Coordinator

A candidate for the Master of Science in Education may elect the program in Educational Development and Strategies (EDS). The requirements for this 30-credit degree are: two courses in Area I Foundations of Education (one of which must be ED 519 Issues, Laws and Trends); three courses in Area II Professional Skills (two of which must be ED 522 Curriculum and Instruction and ED 585 Integrating Technology in the Curriculum); four Performance Learning Systems (PLS) courses in Area V: Educational Development and Strategies (numbered ED 541-558); and three elective credits. Electives can be any course offered by Wilkes and listed in this bulletin that the student has not already taken, including topics courses listed as ED 598. Note: Additional PLS (Area V) courses cannot be used for elective credits in this degree program, including those listed as 558 Topics courses.

The EDS degree is designed to meet the needs of practicing teachers by combining effective strategies with theory and research. The EDS program is offered in the following areas: Berks County, Bradford County, Chambersburg, Chester County, Garetn Valley SD, Harrisburg, Lackawanna County, Lancaster, Lehigh Valley, Mifflin County, Mechanicsburg, Milton SD, Quakertown Community SD, Schuylkill IU#29, Williamsport and York, as well as on the main campus and online.

SCHOOL BUSINESS LEADERSHIP (SBL)  Ms. Kristine Pruett  SBL Program Coordinator

The Master of Science degree in Education with a major in School Business Leadership is
a 30-credit on-line program. Wilkes has collaborated with the Pennsylvania Association of School Business Officials (PASBO) to design advanced courses for the practicing school business professional or anyone interested in entering the field. Courses cover the ten major areas important to any school business professional. Interested candidates should follow the admissions procedures outlined earlier in this section. Applicants must have a minimum of a bachelor’s degree in an appropriate field. A teaching certificate is not required for this program.

Students should take the ten courses from Area X: School Business Leadership, SBL 501 through SBL 510, with SBL 510 being the capstone course, to complete all program requirements. Additionally, it is strongly recommended that individuals with little or no school experience take the prerequisite courses offered through the Pennsylvania Association of School Business Officials (PASBO) entitled the Elements program. For more information on the Elements courses, contact Corrine Shearer, Chief Learning Officer at PASBO, 717-540-9551 or email corrineshearer@pasbo.org.

EARLY CHILDHOOD LITERACY (ECL) Dr. Kathleen Makuch  
ECL Program Coordinator

The Master of Science in Education with a major in Early Childhood Literacy is a 33-credit fully on-line program and is offered through a partnership with Learning Sciences International (LSI). Courses are offered through LSI’s eMBEDDED LEARNING model where coursework is fully applied to the participant’s professional practice to develop mastery with their students to raise reading achievement.

NOTE: There are no transfer credits for Masters in ECL or 21st Century Teaching & Learning.

Teachers interested in enrolling in this program must apply for admission to Wilkes University prior to or at the same time as registering for their first class with LSI and follow the procedure outlined earlier in this bulletin. The application fee is required of all degree-seeking applicants. Teachers must be employed full-time at the K-3 level in an educational institution in order to be admitted into the program. Candidates must take courses only from the Area IX Educational Advanced Methods (EDAM) section of this catalog. The program consists of the following:

• Early Literacy Series (must complete eight courses = 24 credits)
  • EDAM 5001 Early Literacy: Guiding Principles and Language Development (K-3) – must take as first course in program
  • EDAM 5002 Word Study K-3
  • EDAM 5003 Fluency and Vocabulary Development
  • EDAM 5004 Developing Comprehension, Pt I (K-3)
  • EDAM 5005 Developing Comprehension, Pt II (K-1) or EDAM 5006 Developing Comprehension, Pt II (2-3)
  • EDAM 5007 Differentiated Small Group Instruction (K-1) or EDAM 5008 Differentiated Small Group Instruction (2-3)
  • EDAM 5009 Developing Independent Readers (K-3)
In cases where there is a choice of courses, participants should register for the grade level designated for each course that matches the level in which they currently teach. Please refer to the course description section of this bulletin for information on course prerequisite requirements. Register for these courses through LSI by calling 877-574-1638 or go to www.eMBEDDED LEARNING.com.

21st CENTURY TEACHING AND LEARNING

Dr. Kathleen Makuch
Program Coordinator

The Master of Science in Education: Major in 21st Century Teaching and Learning program is a 30-credit online graduate program that enables secondary educators in mathematics, science, social studies, language arts, and other subjects to transform the educational environment of schools to meet the initiatives of the present and challenges of the future. The degree equips teachers with instructional strategies and tools to deal with the needs of diverse learners. This program is offered through a partnership with Learning Sciences International (LSI) and courses follow LSI's eMBEDDED LEARNING model where coursework is applied in the teacher’s classroom to develop mastery of content geared towards raising student achievement. The program in 21st Century Teaching and Learning is conducted online, which accommodates busy schedules of the professional educator. Educators participate in online study groups led by an expert facilitator for guidance and assistance.

The series of courses in 21st Century Teaching Learning combines theoretical foundation with practical application. Cutting-edge research on teaching techniques is translated into strategies and tools to help educators create an engaging classroom environment for their students, which serves as a major contributing factor to student achievement. This degree provides educators an effective, convenient, and accelerated path to increasing job satisfaction, maintaining professional stamina, advancing careers, and raising compensation schedules. Teachers can enroll in the first course while completing the graduate application process. Registration information is available from LSI toll free at 877-574-1638 or on the web at www.embeddedlearning.com/graded.

INSTRUCTIONAL TECHNOLOGY (IT)

Ms. Victoria Glod
IT Program Coordinator

A candidate for the Master of Science in Education degree with a concentration in Instructional Technology who enrolls in the program in the Fall 2007 or later must com-
complete ED 519 Issues, Laws and Trends in Education and one additional course from the following:

- ED 510: Psychological Foundations
- ED 511: Philosophical Foundations
- ED 512: Social Foundations
- ED 513: Comparative Foundations
- ED 515: Cognition

The candidate must also complete ED 520 Using Assessment to Guide Instruction and the following technology courses:

- ED 577 Principles of Information Security
- ED 579 Media Design
- ED 583 Courseware Design and Construction
- ED 585 Integrating Technology into the Curriculum
- ED 587 Technology Leadership
- ED 588 Operating Systems and Networking
- ED 589 Instructional Technology: Models and Methods

The degree will be awarded upon the successful completion of the above listed 30 credits. In addition to the above courses, a three-credit internship, ED 591, is required for Pennsylvania Department of Education certification as a K-12 Instructional Technology Specialist (a total of 33 credits for the Master's degree with IT certification).

Candidates for the Instructional Technology Specialist Certificate who do not have a valid level 1 or level 2 Pennsylvania instructional certificate must achieve a Pennsylvania Qualifying score in the three pre-professional Praxis I tests (reading, writing and mathematics).

The Instructional Technology program is offered at the following sites:

- Wilkes campus
- Berks County Intermediate Unit
- Bethlehem Area School District
- Cumberland Valley School District

The criteria for admission to the Instructional Technology Specialist program are:

- completion of the Wilkes University graduate application/application fee.
- recommendations from college faculty and/or professional supervisors.
- official transcripts indicating successful completion of a baccalaureate degree with an overall minimum undergraduate GPA of 3.0 from an accredited college or university.

Students who do not have a 3.0 GPA may be admitted conditionally. After completion of 12 graduate credits, performance will be evaluated. If successful, the student may then apply for full admission to the program.

The Master of Science in Education with a concentration in Instructional Technology was designed to prepare educators to assume positions of technology leadership in schools. Graduates of the program have gone on to become computer coordinators in K-12 set-
EDUCATIONAL LEADERSHIP (EDLS)  

Rhoda Tillman, Ph.D.  
EDLS Program Coordinator

The graduate program in Educational Leadership consists of 36 credits. A candidate for the EDLS degree, which includes PA Department of Education K-12 Principal Certification, must complete the following “sequence” courses: ED 516, ED 517, ED 576, ED 578, ED 573 and ED 574 prior to registering for ED 592 Administrative Internship and Applied Research Project. However, it is recommended that all 30 course credits be completed before the ED 592 Internship. The “sequence” courses each require a field experience of 35 hours logged outside of class after the first class meeting. Students must also complete ED 519, ED 520, ED 522 and ED 585 to fulfill the remaining degree requirements. The two semester, six-credit internship is required of all candidates for principal certification. Each semester of the internship requires a field experience during which students log 90 hours for a total of 180 hours outside of class. Candidates will be recommended for principal certification upon successful completion of the program course of study, a passing score (580) on the PDE required principal certification Praxis test #410, Educational Leadership: Administration and Supervision, and five years of professional school experience on the appropriate teaching certificate. Students must follow the program outline above in order to complete all necessary requirements.

A 'Certification Only' Option is available for the Educational Leadership program and requires a Wilkes graduate application, application fee, official transcripts and two letters of recommendation. A previous Master's degree, either from Wilkes or another university, is required for admission as a ‘Certification Only’ student. Wilkes EDLS graduate credits are required for principal certification only, with final determination of the courses needed made by the EDLS program director upon transcript review. If the previous master's is from Wilkes, there is no need to repay the application fee but a new, updated application form must be submitted.

In addition to the Wilkes campus weekender format, off-campus EDLS programs are offered at the Berks County IU#14, Bethlehem Area SD, Catasauqua SD, Chambersburg Area SD, Delaware Valley SD, Derry Township, Loyalsock Township SD, Mifflin County SD, Northeast Education IU#19, Parkland SD, Pleasant Valley SD and Pocono Mountain SD.

The MS in Educational Leadership (EDLS) is also available in a low residency format online. The EDLS Online program is designed to meet PA Department of Education standards for principals. EDLS Online begins by bringing student cohorts to the university campus in Wilkes-Barre, PA for a week-long residency. During the residency students begin work in the first two courses that form the base of the EDLS experience—ED 516 Educational Leadership and ED 517 The Principalship.

Following the residency, students finish their work in ED 516 and ED 517 online. These and all subsequent courses are conducted completely through the Internet. Every EDLS Online course includes a field experience component. Candidates will be recommended
for K-12 principal certification upon successful completion of:
• One week residency
• EDLS Online program of study
• PDE required principal certification exam (Praxis 0410) administered by ETS
• 5 years of professional school experience

Qualifications for Admission to the Educational Leadership Program:
• Successful completion of the general Wilkes University application process.
• The Miller Analogies Test is administered during ED 516. If the MAT has been taken within the past five years, official report must be sent to Wilkes University.
• Written statement from the candidate attesting to interest and motivation to pursue a degree in educational leadership and principal certification.
• Instructional ITeaching Certificate, if seeking principal certification.
• At least three years full-time teaching experience at time of admission, if seeking principal certification. A total of five years is required to apply for certification upon completion of the program.

MASTER OF SCIENCE IN EDUCATION WITH SPECIAL EDUCATION CERTIFICATION OPTION
Kristin C. Bewick, Ph.D
Special Education Program Coordinator and Advisor

The Master of Science In Education Program with Special Education Certification Option is designed to prepare individuals for Pennsylvania certification in Special Education (currently, nursery school through grade 12). To be eligible for admission into the Special Education Master’s Program, applicants must possess a previously earned Pennsylvania Instructional Certificate in Early Childhood Education, Elementary Education or a Secondary content area and present a copy of the certificate during the admissions process. An applicant who is certified in another state may contact the Pennsylvania Department of Education (PDE) at http://www.pde.psu.edu/ to apply for PA certification, prior to admission to Wilkes University. The Master of Science Program with Special Education Certification Option is not designed for previously certified Special Education teachers, since it prepares individuals for state certification.

All secondary certified applicants must have taken and passed four pre-requisite courses before being awarded the degree and prior to eligibility for state certification. An official transcript must be on file in the Graduate Teacher Education office as evidence that these courses have been satisfactorily completed. These pre-requisite courses may be completed at the undergraduate or graduate level as follows:
• Developmental Psychology
• Foundations of Reading with Field Experience
• Math in Early Childhood / Elementary Education
• Science in Early Childhood / Elementary Education

A candidate for the Master of Science in Education with Special Education Certification Option will complete 30 graduate credits to obtain the Master's degree and certification in
Special Education (18 credits of EDSP courses and 12 credits of core ED courses). Core Education course requirements are as follows:

- ED 518 School Law and one additional course from Area I Foundations in Education
- ED 522 Curriculum and Instruction
- ED 585 Integrating Technology in the Curriculum

Special Education courses are as follows:

- EDSP 501 and 502 Special Education Methodology I and II with Field Experience (15 hours of field experience in each course)
- EDSP 503 Behavior Management with Field Experience (15 hours of field experience)
- EDSP 504 Assessment in Special Education
- EDSP 505 Issues and Topics in Special Education
- EDSP 506 Internship in Special Education (100 internship hours involving direct teaching with special education students)

After successful completion of all certification courses, fieldwork, and internship experiences students may apply for state certification in Special Education. In order to obtain certification all students must successfully pass the Special Education PRAXIS test, Education of Exceptional Students Core Knowledge, numbered 20353 and Fundamental Subjects Content Knowledge Test, numbered 30511. Information about registering for the PRAXIS tests is available at www.ets.org.

After receiving passing scores on the appropriate PRAXIS tests, the student will complete state application forms PDE 338G (General Application) and PDE 338C (University Verification Form - Part A) for Pennsylvania Teacher Certification. Application forms are available online at the PDE website: www.pde.psu.edu. The applicant will include the required application fee in the form of a money order to Commonwealth of Pennsylvania ($40.00 starting in July 2006). The application forms are given to the Special Education Program Advisor who then forwards the application packet to the Wilkes University Certification Officer, Dr. Diane Polachek, Breiseth Hall Room 204. The student’s transcript, previous teaching certificate, and PRAXIS scores are reviewed by the Certification Officer prior to sending the application to the Pennsylvania Department of Education.

** Courses for the Special Education program are available at the Wilkes campus and at the Catasauqua School District site.

FIELD EXPERIENCE AND INTERNSHIP GUIDELINES:

**Purpose of Field Experiences**
The Graduate Special Education Program requires a sequence of field experiences that provide opportunities to apply theoretical knowledge and demonstrate professional competence. Field experiences take place in various N-12 classrooms, as relevant to the content of the specific course. Field placements are intended to be varied so that students can experience multiple grade levels, various pupil needs, and different teaching styles throughout the program.
Field Experiences and Course Assignments
Field experiences and related assignments are built into the requirements for each designated special education course. Students are required to complete observation journals and logs in each course, and to help the classroom teacher with specific instructional activities assigned from each course instructor. Reflection and discussion about field experiences as well as specific projects and assignments are integrated into each course, and contribute to the determination of the final course grade. Course assignments are embedded within field experiences, including assessment and progress monitoring, lesson planning, tutoring, disability exploration, and technology projects.

Note: All students are expected to complete field experiences for each designated course. Students who are employed in teaching jobs must make arrangements to complete field experiences in a classroom other than their own.

Field Placements
Graduate students arrange and schedule their own field experiences, relevant to the specific EDSP course content. Students are required to have current Criminal Record and Child Abuse Clearances on file in the Graduate Department prior to starting the field work. Student will notify the course instructor about the specific placement, including name of teacher, school district, grade level, and type of program. Information about placement is recorded in the student's Field Placement Log as directed by the course instructor.

Membership in PSEA (Pennsylvania State Education Association) is highly recommended for all students planning to participate in field experiences. PSEA membership offers liability insurance for individuals working in school settings. Graduate students who are practicing teachers may already have a full professional PSEA membership. Graduate students who have never enrolled as a professional member may register for a discounted “Student Membership” which also provides liability insurance. PSEA membership also carries many other benefits and incentives. Enrollment in PSEA may be done on line at www.psea.org.

The following list describes the types of placement that will be appropriate for each special education course:
EDSP 501 Special Education Methodology I with Field Experience - (15 hours of field work). The course focuses on higher incident special needs populations who are typically integrated and included in general education classrooms. Good field experience matches would be found in the following classrooms; learning support, learning disabilities, reading disabilities, resource room, inclusion, “pull-out” or “push-in” programs.

EDSP 502 Special Education Methodology II with Field Experience - (15 hours of field work). The course focuses on lower incident special needs populations with more significant exceptionalities such as mental retardation, autism, physical disabilities. These students would be found typically in settings such as: life skills, autistic support, mental retardation programs, physical support, sensory impairments (vision and hearing impairments).
EDSP 503  Behavior Management in Special Education with Field Experience -(15 hours of field work). The course focuses on special needs students diagnosed with various emotional and behavioral difficulties. Typically these students participate in specialized behavioral management programs, which may be separated from the general education classroom. Good field experience matches would be found in the following classrooms; emotional support, behavioral support, SED (severe emotional disturbance), EBD (emotional behavioral disorders). It would also be appropriate for Wilkes students to observe individual pupils with emotional/behavioral disorders during sessions with school counselors, Therapeutic Support Service providers, and school psychologists.

EDSP 506. Internship in Special Education Guidelines
The Internship is the culminating activity for the Special Education Certification program. During this three-credit course, students work with a certified special education teacher and their respective course instructor while exploring opportunities to apply knowledge gained in the previous five EDSP courses. The Internship requires 100 hours of fieldwork including direct teaching, related meetings, preparation, paperwork and Wilkes class time. The internship may only be taken when all other EDSP courses have been completed or in conjunction with the final EDSP course.

Internship Placement Procedures
Graduate students arrange and schedule their own internship placement. The Program Advisor may assist the student if a placement is unable to be determined. Occasionally, a specific internship experience may be recommended for the student.

A. It is the student's responsibility to identify a mentor teacher. The mentor teacher must be certified in special education and must be employed in a special education setting. The student should approach the potential mentor teacher to determine whether he/she is interested in serving in the role of mentor teacher.

B. Once the student has secured permission from the mentor teacher, he/she needs to complete a Mentor Teacher Application Form. The form is signed by the mentor teacher. The form is then submitted, along with current Act 34 (PA State Police Criminal Record Check) and Act 151 (PA Child Abuse History Check) clearances to the Graduate Teacher Education department.

C. Paperwork for placement must be submitted to the Graduate Teacher Education department three weeks prior to start of semester/hours.

D. Once all the paperwork is in place, the Coordinator of Graduate Field Placements will review the placement with the Special Education Program Coordinator, who ultimately approves all placements. The Program Coordinator and the Director of Graduate Teacher Education reserve the right to decline placements that are deemed to be inappropriate.

E. The student will be assigned a supervisor from Wilkes. In most cases, the supervisor is the EDSP 506 course instructor.

F. The Coordinator of Graduate Field Placements and Special Education Program Coordinator review the class lists for EDSP 506 to confirm that all students have legitimate field placements. In the event that students have not completed the process, they will not be allowed to continue in the course.
**Internship Requirements**
Interns must participate in a minimum of 100 hours in an instructional setting with special education students. Interns must keep a detailed log of the time spent and the activities engaged in during the internship. Forms will be distributed by the course instructor.
During the internship, interns will complete the following tasks:
- Assess students’ strengths and weaknesses
- Assist in the development of an Individualized Education Plan (IEP)
- Write a functional behavior plan (FBA)
- Develop and conduct a minimum of two lessons
  - One lesson needs to be scheduled for a time when the Internship supervisor/instructor can observe the presentation. Alternate video taping of the lesson can be arranged, as a last resort, with the instructor if there is an irresolvable conflict in schedules.
- Interns must participate in parent related communications (i.e. parent conferences, phone conversations, written correspondence)
- Interns must participate in a team meeting related to student progress

**SECONDARY EDUCATION**
Wilkes offers Master’s degree programs in Secondary Education in various content areas including Biology, Chemistry, English, History, and Mathematics. Applicants should possess teacher certification in the content area for which they are applying. The secondary education programs are not designed to prepare students for certification. A candidate for the Master of Science in Education degree whose program is in one of the secondary school teaching subjects must complete 18 credits in the appropriate content area and 12 Education graduate course credits consisting of six credits in Area I Foundations of Education and six credits in Area II Professional Skills (three credits of which must be ED 522 Curriculum and Instruction). Information about specific courses in the Secondary Education master’s degree programs can be found in the Biology, Chemistry, English, History or Mathematics sections of this bulletin. Students are encouraged to contact the department chair of the specific content area to inquire about course availability. The education courses of the Secondary Education programs may be taken at off-campus locations in any semester, but the content area courses can only be taken on the Wilkes campus, typically during fall and spring semesters only.

**LETTER OF ENDORESEMENT IN TEACHER LEADERSHIP AND INSTRUCTIONAL COACHING**

Dr. Kathleen Makuch
Program Coordinator

This program is a 12-credit sequence of courses that results in a Letter of Endorsement in Teacher Leadership and Instructional Coaching for the student. The Letter of Endorsement is an indication that the student has completed a series of courses and can be considered to have advanced competencies and skills in the area of instructional coaching and teacher leadership. Teachers interested in applying to this program must have a minimum of three years full-time teaching experience in an educational setting. Applicants must submit the program application, current application fee and one recommendation to enroll in the program along with a copy of their teaching certificate. The recommendation should be from
the applicant’s current principal or supervisor and attest to the applicant’s ability to be a teacher leader as well as verify the length of service as a full-time teacher.

Candidates will take EDAM 5013 Teacher Leadership as the pre-requisite course then follow with the Instructional Coaching courses (EDAM 5020 and EDAM 5021). For the last course participants will select the problem-based approach course appropriate to their level, either EDAM 5022 or EDAM 5023. Students completing EDAM 5013 as part of the Early Childhood Literacy master’s degree will not need to retake it. They will only take the remaining three courses (nine credits) to complete the Letter of Endorsement. Upon successful completion of the 12 credits, candidates will be granted a Letter of Endorsement that can be presented as evidence that knowledge and skills of teacher leadership and instructional coaching have been effectively demonstrated. Register for these courses through LSI by calling 877-574-1638 or go to www.eMBEDDED LEARNING.com.

**COURSE DESCRIPTIONS**

**AREA I - FOUNDATIONS OF EDUCATION**

**EDUCATION 510. PSYCHOLOGICAL FOUNDATIONS OF EDUCATION**

Three credits

A study of human development and learning, application of psychological principles in the practice of education.

**EDUCATION 511. PHILOSOPHICAL FOUNDATIONS OF EDUCATION**

Three credits

An examination of philosophical issues which bear upon American education. The problem of relating theory to practice is considered.

**EDUCATION 512. SOCIAL FOUNDATIONS OF EDUCATION**

Three credits

An introduction to the history, scope, materials and methods of the sociological analysis of education. Instruction includes the concepts of culture, socialization, stratification, social control and change as they relate to formal education.

**EDUCATION 513. COMPARATIVE FOUNDATIONS OF EDUCATION**

Three credits

An analytic study of educational patterns in contemporary societies. Educational policies and institutions are studied in their cultural context. Educational patterns of developed and developing nations are described, analyzed and compared; examples from each pattern are examined.

**EDUCATION 514. ISSUES IN EDUCATION**

Three credits

An examination of contemporary issues in education and their historical perspectives. The development of school organizations and higher education; instructional programs and curricula; and the delivery systems and functions of education are examined in light of contemporary issues. A survey of American education from past to present is presented.
EDUCATION 515. COGNITION  
Three credits
This course provides in depth study of the processes required for students to process information, including perception, attention, memory, encoding, retrieval, problem solving, and the information processing requirements of reading and writing. Consideration of problem solving in specific subject areas is also covered.

EDUCATION 518. SCHOOL LAW  
Three credits
An examination of school law at the federal, state and local levels; review, discussion and analysis of court decisions which affect schools. Required for Special Education Program.

EDUCATION 519. ISSUES, LAWS AND TRENDS IN EDUCATION  
Three credits
This course will focus on an examination of school law at the federal, state and local levels through review, discussion and analysis of court decisions that affect educational institutions. The study of school law and American education will be centered on contemporary issues with consideration given to historical perspectives, accountability issues and future trends. Topics will include legal and ethical issues in instructional delivery systems and the functions of education. Students who have previously taken either ED 514 or ED 518 may not register for ED 519. Required for the Educational Leadership Program for students beginning courses in Fall 2007.

AREA II - PROFESSIONAL SKILLS IN EDUCATION

EDUCATION 520. USING ASSESSMENT TO GUIDE INSTRUCTION  
Three credits
(Previously titled Educational Assessment)
An examination of various assessment strategies and current methods of assessment, through the study of theory and effective practices in assessment translated into design. The analysis of disaggregated student data to implement effective change in teaching and assessment practices will be explored. Research based strategies for the assessment and instruction of diverse learners will be examined. (Cross listed with EDAM 5032). Required for the Educational Leadership Program for students beginning courses in Fall 2007.

EDUCATION 521. STATISTICS IN EDUCATION  
Three credits
Correlation and regression through statistical inference.

EDUCATION 522: CURRICULUM AND INSTRUCTION  
Three credits
(Previously titled School Curriculum—cannot repeat for additional credit)
A study of school curricula offered in elementary and secondary education. Models and trends in curriculum development will be explored by examining past and present influences on curriculum. Participants will relate this knowledge to their own delivery of curriculum to students. Required for all programs except Instructional Technology.

EDUCATION 525. INTRODUCTION TO EDUCATIONAL RESEARCH / MASTER’S LEVEL  
Three credits
This course is designed to facilitate learning methods and techniques of educational re-
search, critiquing published research and conducting a thorough and professional search for research literature on a selected topic.

EDUCATION 585. INTEGRATING TECHNOLOGY INTO THE CURRICULUM  
Three credits

The course will present models of instructional design to provide a theoretical framework in the application and integration of microcomputer technology into the K–12 curriculum. Participants will develop a portfolio of computer-generated materials for their classroom. Required for the Classroom Technology, Instructional Technology, Special Education, Educational Leadership, and Educational Development and Strategies Programs.

AREA III - ELEMENTARY EDUCATION

EDUCATION 531. CHILDREN'S LITERATURE  
Three credits

A study of methods and materials appropriate for elementary school instruction in literature.

EDUCATION 532-533. PROBLEMS IN ELEMENTARY EDUCATION  
Three credits

Advanced study of materials and methodology appropriate for elementary classroom instruction.

Section  
A Mathematics  
B Science  
C Language Arts  
D Social Studies  
E Special Subjects

EDUCATION 536. ELEMENTARY SCHOOL READING INSTRUCTION  
Three credits

Lectures and demonstrations cover the psychology of the reading process, appraisal of reading needs, directed reading activities, word recognition and comprehension abilities.

EDUCATION 537. READING DISABILITIES  
Three credits

Lectures and demonstrations cover the identification, diagnosis, and classification of individuals with reading problems at all ages and levels of instruction. Prerequisite: ED 536.

AREA IV - SECONDARY EDUCATION

EDUCATION 540. SPECIAL METHODS IN SECONDARY SCHOOL INSTRUCTION  
Three credits

Section  
A Biology  
B Chemistry  
C Environmental Science  
D English  
E History  
F Mathematics  
G Physics  
H Reading  
I Social Studies  
J Educational Theater  
K Science
AREA V - EDUCATIONAL DEVELOPMENT AND STRATEGIES

NOTE: Education 541 through Education 558 were developed by educators at Performance Learning Systems, Inc. (PLS). The coursework is tightly structured, utilizing programmed learning with integrated audio-visual materials. Students conduct research in their own classrooms and report regularly on their success in employing strategies taught. Instructors for these courses receive special training prior to assignment. To register and pay tuition for these PLS courses only, contact the Performance Learning Systems office directly @ 1-866-757-2527.

All courses listed with a “W” (for Wilkes credit) on the PLS course schedule may be used toward the required 12 credits of Performance Learning Systems courses for the Wilkes EDS degree.

ED 541. DESIGNING MOTIVATION FOR ALL LEARNERS Three credits
(previously titled Keys to Motivation - students cannot retake for additional credit)
Students will design learning experiences and develop effective leadership strategies that promote motivation for all learners. Additionally, they will learn verbal encouragement techniques that motivate by reinforcing student effort and reducing risk and discover how purposeful work and goal achievement can support all types of learners.

EDUCATION 542. MEANINGFUL ACTIVITIES TO GENERATE INTERESTING CLASSROOMS (M.A.G.I.C.) Three credits
A hands-on course which offers students the opportunity to learn a variety of engaging activities to go beyond textbook and workbook instruction. Participation in over 60 activities provides practice in creating, evaluating, and adapting ideas to each participant's specific curriculum.

EDUCATION 543. ACHIEVING STUDENT OUTCOMES THROUGH COOPERATIVE LEARNING Three Credits
Designed to encourage teachers to use cooperative strategies appropriately in classrooms. Activities include simulations, use of cooperative learning models, and creation of lesson plans.

EDUCATION 544. ADVANCED PROJECT T.E.A.C.H. LAB Three credits
Offers an opportunity for participants to actively practice the skills learned and utilized in Project T.E.A.C.H. Participants use the innovative techniques of storyboarding, journal writing, videotaping, live event activities and simulations in this course.
Prerequisite: ED 550 Project T.E.A.C.H.

EDUCATION 545. ADVANCED TEACHING THROUGH LEARNING CHANNELS LAB Three credits
Offers an opportunity for participants to actively practice the skills learned and utilized in Teaching Through Learning Channels.
Prerequisite: ED 552 Teaching Through Learning Channels
EDUCATION 546. COACHING SKILLS FOR SUCCESSFUL TEACHING  
Three credits
Develops and models strategies that help teachers share teaching ideas with one another. Participants will learn how to plan and implement coaching conferences, enhance teacher self-esteem with supportive techniques, share ideas with colleagues in a non-threatening environment and identify excellent teaching practices and grow from them.

EDUCATION 547. TEACHING THE SKILLS OF THE 21st CENTURY  
Three credits
Through the use of dynamic videotape productions, activities, articles and unique survey instruments, this course looks at what students need to know and be able to do to live successfully in the 21st century. In a forum where educators can share their vision of how a curriculum should be developed and taught, the course introduces facilitations skills that ensure the successful education and enrichment of both student and teacher.

EDUCATION 548. PURPOSEFUL LEARNING THROUGH MULTIPLE INTELLIGENCES  
Three credits
Based on the research of Howard Gardner, this course focuses on understanding each of the intelligences and identifying them. Discovery centers are used to experience each intelligence and teaching strategies and classroom activities that enhance the intelligences are designed by participants.

EDUCATION 549. DISCOVERING THE POWER OF LIVE EVENT LEARNING  
Three credits
This course teaches how to use active participation in real-life experiences to create lesson plans that allow students to learn through real experiences. Participants learn facilitative leadership skills which enable them to go beyond hands-on learning and simulations to incorporate real concrete experiences in their lessons which promote student problem solving and decision making.

EDUCATION 550. PROJECT T.E.A.C.H.  
Three credits
Teacher Effectiveness and Classroom Handling (T.E.A.C.H.) deals with clarity of communication, avoidance of confrontation, and techniques to reduce tension in the classroom.

EDUCATION 551. P.R.I.D.E.  
Three credits
Professional Refinements in Developing Effectiveness (P.R.I.D.E.) treats questioning techniques, non-verbal communication, and the development of contracts to motivate students.

EDUCATION 552. TEACHING THROUGH LEARNING CHANNELS  
Three credits
This course utilizes recent brain research, examines individual differences in learning styles, and develops adaptive teaching procedures to accommodate varying cognitive processes.

ED 553. BRAIN-BASED WAYS WE THINK AND LEARN  
Three credits
(previously titled Patterns for IDEAS - students cannot repeat for additional credit)
This course will explore the four basic thinking skills of induction, deduction, analysis, and synthesis. Students will experience, model, and internalize specific techniques of brain-based teaching and learning and will integrate thinking processes into real-life applications.
ED 554. SUCCESSFUL TEACHING FOR ACCEPTANCE OF RESPONSIBILITY

This course is designed to help experienced and beginning K-12 educators create a classroom environment in which responsible behavior is modeled, taught, and supported. Participants will explore the underlying causes of irresponsible behavior and learn specific strategies associated with four instructional approaches that empower students to be self-directed, responsible learners. As participants learn to mentor, model, coach, and facilitate responsible actions in their students, they likewise develop increasing responsibility and personal power in their own professional practice.

ED 555. CLASSROOM MANAGEMENT: ORCHESTRATING A COMMUNITY OF LEARNERS

This course equips experienced and beginning K-12 educators with current, research-validated concepts and strategies for orchestrating classroom life and learning so that instruction flows smoothly, student misbehavior is minimized, and learning potential is maximized. Participants will learn strategies associated with seven key areas of expertise that collectively contribute to a teacher's classroom management effectiveness.

ED 558. SPECIAL TOPICS IN EDUCATION

Designates Performance Learning Systems courses that are in field test status. Courses are applicable toward appropriate degree programs. ED 558 is a designation given to multiple courses that are in field test mode. As such, a student may take more than one ED 558. It is the title of the course that designates one from another.

AREA VI - EDUCATIONAL COMPUTING COURSES

EDUCAOTION 526. INTERNET LITERACY FOR EDUCATORS

This course will explore developmentally appropriate teaching and learning opportunities that are available to classroom teachers via the Internet. Students will learn to use various types of electronic communications including the development of curriculum web sites that address content standards and student technology standards. The use of technology to communicate with peers, parents and the larger community to nurture student learning will be explored. The safe and healthy use of technology resources to facilitate equitable access of resources for all students will be endorsed. Research of best practice regarding online pedagogy will be examined. Required for Classroom Technology Program.

EDUCATION 527. AUTHORING SYSTEMS/INSTRUCTIONAL DESIGN

Design and construct lessons, tutorials and presentations for the classroom utilizing authoring software such as PowerPoint or HyperStudio. Ways to incorporate multimedia will also be explored and various design methodology will be examined. Required for Classroom Technology Program.
EDUCATION 528. USING PRINT MEDIA TO SUPPORT EDUCATION 
Three credits
This course will address the editing and manipulation, enhancement and transformation of
digital images including an overview of various graphic input devices. Concepts explored
within the course will include image size, resolution and compression. The difference
between preparing an image for a print medium vs. on-screen viewing will be discussed.
The print media component of the course will present accepted principles of layout and
design for professional looking documents that can be used in the classroom. Newsletters,
flyers, booklets and other classroom materials that address the differentiation of instruction
to accommodate the needs of all P - 12 students will be generated. Required for
Classroom Technology Program.

EDUCATION 529. DISTANCE LEARNING 
Three credits
This course is designed to guide students through the process of adapting their current
teaching materials for TeleTeaching. Educators will learn how to prepare themselves, their
students and their materials for this teaching and learning environment.

EDUCATION 530. UTILIZING EMERGING TECHNOLOGIES TO
IMPROVE LEARNING 
Three credits
This course is designed to help students understand different key learning theories and their
effective use in the design of accessible learning activities. Students will apply learning the-
ory principles to develop model lessons using emerging technologies. Students will also
identify appropriate strategies and technologies to support equitable access and diverse
learning styles. Using technology to accomplish data-driven decision-making will be
explored. Required for Classroom Technology Program.

EDUCATION 577. PRINCIPLES OF INFORMATION SECURITY 
Three credits
With focus on the educational environment, this course will discuss the principles of infor-
mation security, building a clear understanding of the foundations of information security,
the principles on which managerial strategy can be formulated and the technical solutions
available to technology coordinators. This course will be offered fall semesters when demand
warrants. Required for Instructional Technology Program.
Prerequisite: ED 585 and ED 588.

EDUCATION 579. MEDIA DESIGN 
Three credits
This course is designed to give specific and realistic examples of how different types of
media and instructional technology can complement each other in the computer age class-
room. Emphasis will be given to the design and production of instructional materials using
text, video, audio, and computer based and photographic formats for use in both distance
learning and traditional classrooms. Required for Instructional Technology Program.

EDUCATION 580. INTRODUCTION TO EDUCATIONAL COMPUTING 
Three credits
The course will provide teachers with basic computer skills and experiences with exempla-
ry courseware and utility software. This introductory course is especially designed for teach-
ers who are computer novices who lack the skills necessary for advanced classroom technology courses.

**EDUCATION 581. INSTRUCTIONAL PROGRAMMING IN BASIC**  
Three credits  
Introduction to computer programming using the BASIC language. Topics include BASIC syntax, program modularity and design, simple graphics, and elementary data structures. Emphasis is on application in instructional environments.  
Offered when demand warrants.

**EDUCATION 582. INSTRUCTIONAL PROGRAMMING IN C++**  
Three credits  
C++ is an object-oriented programming environment that generates compiled code. C++ (and the underlying language C), has been designated as the programming language to be used in the Advanced Placement computer science examination for high school students. It is also the fastest growing language for personal computer software development. Emphasis is on application in instructional environments.  
Offered when demand warrants.

**EDUCATION 583. COURSEWARE DESIGN AND CONSTRUCTION**  
Three credits  
Using state-of-the-art technology to design and construct appropriate courseware support and curricula. Topics include the use of authoring software, optical technologies, ISD (Instructional Systems Design) models and strategies geared towards proper courseware design. Required for Instructional Technology Program.

**EDUCATION 584. LOGO**  
Three credits  
Introduction to computer programming using Logo and LogoWriter. Topics included are turtle-graphics, words and lists, recursion, "scrapbook" and "microworld" construction and elementary data structure representation.  
Offered when demand warrants.

**EDUCATION 586. MICROCOMPUTERS IN EDUCATION**  
Three credits  
An analysis of microcomputer applications designed for various educational settings. Special emphasis is placed on software selection, review and utilization.

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Offered when demand warrants.

**EDUCATION 587. TECHNOLOGY LEADERSHIP**  
Three credits  
Organization of instructional technology programs, facilities and resource management-including a technological in-service program. This course will also study the laws and regulations which govern the selection and utilization of media, sources for funding and collaboration on development of a grant proposal. Required for Instructional Technology Program.

**EDUCATION 588. OPERATING SYSTEMS & NETWORKING**  
Three credits  
An exploration into the design of present-day microcomputer systems. Topics include mi-
crocomputer architecture and hardware, telecommunications, networking and general operating systems. **Required for Instructional Technology Program.**

**EDUCATION 589. INSTRUCTIONAL TECHNOLOGY: MODELS AND METHODS**

Three credits

A "wide area" look into technology integration. An investigation into what the responsibilities of a technology coordinator will be - relating technology and thinking processes, the cognitive effects of technology integration, materials acquisition and placement and general administrative strategies. **Required for Instructional Technology Program.**

**EDUCATION 591. INTERNSHIP (Instructional Tech)**

Three credits

Participation in field experience to observe the use of technology to support instruction, the management of technology resources in educational settings, and the evaluation of effectiveness of technology resources for teaching and learning; application of technology resources to support instruction in classroom settings. **Required for PA Instructional Technology Specialist Certification.**

Prerequisites: ED 587, ED 588, ED 589 (or equivalent) and permission of Director.

**AREA VII - SPECIAL EDUCATION (EDSP)**

**EDSP 501. SPECIAL EDUCATION METHODOLOGY I WITH FIELD EXPERIENCE**

Three credits

This course addresses the development, implementation, and monitoring of individualized management, instructional, curricular, and environmental strategies and adaptations for students with special needs. Pedagogical recommendations and research based effective teaching practices are reinforced from prerequisite courses. Emphasis is placed on a needs based model incorporating the cognitive, language, attentional, affective, physical, and sensory needs of higher incident populations (learning disabilities, mild mental retardation, speech disorders, and behavioral challenges) within included settings, resource room, segregated and learning support environment. A 15-hour field experience component facilitates direct interaction with special needs learners, supplemented by cooperative discussions of experiential applications to course content.

**EDSP 502. SPECIAL EDUCATION METHODOLOGY II WITH FIELD EXPERIENCE**

Three credits

This course addresses the development, implementation, and monitoring of individualized management, instructional, curricular, and environmental strategies and adaptations for students with special needs. Pedagogical recommendations and research based effective teaching practices are reinforced from prerequisite courses. Emphasis is placed on a needs based model incorporating the cognitive, language, attentional, affective, physical, and sensory needs of lower incident populations (multiple disabilities, hearing/vision impairments, orthopedic and health conditions) within included settings, resource room, learning support, and segregated environments. A 15-hour field experience component facilitates direct interaction with special needs learners, supplemented by cooperative discussions of experiential applications to content.
EDSP 503. BEHAVIORAL MANAGEMENT WITH FIELD EXPERIENCE  
Three credits
This course will assist preservice teachers in developing a working framework of social, behavioral, environmental, individualized, and collective management techniques. Techniques practiced in the course will focus on approaches for classroom organization, constructive discipline, and proactive responses to intervention, including applied behavior analysis and functional behavioral assessments. A 15-hour field experience component facilitates direct interaction with special needs learners, supplemented by cooperative discussions of experiential applications to course content.

EDSP 504. ASSESSMENT IN SPECIAL EDUCATION  
Three credits
This course will provide direct experience with selecting, administering, and interpreting formal and informal assessment measures for analysis of student learning profiles. Assessments will include ecological inventories, norm-referenced, performance-based and curriculum-based testing standardized achievement and intelligence measures, and vocation/transition-related evaluations. Cooperative discussions will focus on instructional decision-making based upon student learning profiles.

EDSP 505. ISSUES AND TOPICS IN SPECIAL EDUCATION  
Three credits
This course will offer a colloquium for constructive exploration of specialized topics in the field of special education. Preservice teachers will be given the opportunity to pursue independent issues relative to their endeavor as special educators, reviewing and reinforcing skills in the critical areas of assessment, inclusion, IEP development, discipline, management, transition, organization, planning collaboration, and professional/personal development.

EDSP 506. INTERNSHIP IN SPECIAL EDUCATION  
Three credits
This course is the culminating activity for the Special Education Certification add-on program. In the course, candidates work with a special education certified teacher and their respective professor as they experience opportunities to apply knowledge gained in EDSP 501 through EDSP 505. The internship requires 100 hours including direct teaching, related meetings, preparation and paperwork as well as designated Wilkes class-time. Examples of activities students will be involved in include (but are not limited to): a needs assessment for special education students, experience with IEPs, construction of an instructional segment, delivery of instruction, parent and staff meetings, conducting classroom based assessments and identification of appropriate instructional materials. Note: The Internship must be taken as the final EDSP course or in conjunction with the final EDSP course.

AREA VIII - ADVANCED COURSES

EDUCATION 516. EDUCATIONAL LEADERSHIP  
Three credits
This course introduces students to research on educational leadership theory, models, and styles. Ethics in leadership, decision-making models, and the principal as instructional leader are examined. The study of research methodology is incorporated and practiced to develop skills for future use in leadership plans of study. Required for Educational Leadership Program.
EDUCATION 517. THE PRINCIPALSHIP  
Three credits
This course introduces students to the role and responsibilities of the principal. Theory is transferred to practice through the use of case study and in-basket/out-basket assignments which will address critical issues in educational leadership. The use of leadership knowledge and skills are developed through the study of the principal's role in shaping the school culture & climate, developing a shared vision, managing group dynamics, and maintaining a safe and orderly learning environment. Required for Educational Leadership Program.

EDUCATION 570. PROFESSIONAL AWARENESS FOR COOPERATING TEACHERS  
Three credits
This course is designed to identify the role of the cooperating teacher concerning the supervision of student teachers. The course presents a formal training program for cooperating teachers including strategies for the effective interaction with student teachers as well as crucial techniques of observation, supervision and evaluation.
Prerequisite: Admission to this course approved through application to the Education Department.

EDUCATION 572. EXTENDED TEACHING  
Three credits
Students with appropriate teaching experience are assigned to a supervised teaching setting.
Prerequisite: Approval of education department chairperson.

EDUCATION 573. EVALUATION OF EDUCATIONAL PROGRAMS  
Three credits
Students will undertake advanced study in educational assessment strategies and program evaluation. Instruction will focus on the principal's role in guiding teachers in the design of effective assessments and alternative assessment strategies, and the use of assessment in program evaluation. Working in collaboration with faculty, colleagues, and a practicing administrator, students will design a leadership plan of study for a topic in this area. The plan of study must directly relate to the role and responsibilities of the principal in this capacity. Sample topics can be drawn from such areas as: student assessment methods, evaluation of special and regular education programs, academic standards and the PA Assessment System or other related topics. Required for Educational Leadership Program.

EDUCATION 574. SCHOOL/COMMUNITY RELATIONS  
Three credits
Students will study the role of the principal in establishing and maintaining positive school and community relations. Instruction will be provided in positive public relations and in effective communications techniques. Working in collaboration with faculty, colleagues and a practicing administrator, students will design a leadership plan of study for a topic related to this area. The plan of study must directly relate to the role and responsibilities of the principal in this capacity. Sample topics can be drawn from such areas as: needs assessments, communication systems, parent involvement, school partnerships, or other related topics. Required for Educational Leadership Program.

EDUCATION 576. SITE MANAGEMENT  
Three credits
This course focuses on the study of administrative functions in educational institutions.
Topics covered are budget planning, facilities management, resource allocation and scheduling. School finance and sources of revenue for schools as they impact the allocation of resources and scheduling of programs are examined. **Required for Educational Leadership Program.**

**EDUCATION 578. STAFF DEVELOPMENT AND SUPERVISION**  
***Three credits***  
This course focuses on staff development and teacher supervision. Models of supervision, such as clinical supervision and differentiated supervision, are examined. Case studies will be utilized to gain understanding of the teacher evaluation process. Mentoring and new teacher induction programs will be investigated. An overview of the laws and policies, which influence and govern these programs will be included. **Required for Educational Leadership Program.**

**EDUCATION 590. THESIS**  
***Three credits***

**EDUCATION 592. EDLS ADMINISTRATIVE INTERNSHIP AND APPLIED RESEARCH PROJECT**  
*(Two semesters at 3 credits each)*  
**Six credits total**  
Students will complete work as an administrative intern with practicing K-12 principals. Within this experience, students will design a leadership plan of study to implement a research-based project, which will attest to their ability to perform as an educational leader. The project is to address the needs of the candidate, as well as the needs of the school where the internship is being completed. **Required for Educational Leadership Program.**  
Prerequisites: Completion of 30 required program credits and permission of program director.

**EDUCATION 594. WORKSHOP**  
***Three credits each semester***  
Provides an opportunity for experienced teachers to develop study programs designed to meet their special needs. Students may receive credit more than once if there is no duplication in subject matter covered.

**EDUCATION 595-596. INDEPENDENT STUDY**  
***Three credits each semester***  
Affords an opportunity for independent study of selected topics under faculty supervision. Prerequisite: Permission of department chairperson/program director.

**EDUCATION 597. SEMINAR**  
***Three credits***  
An advanced course dealing with some significant issues selected by the instructor. The seminar technique provides a review of major problems based on the current level of knowledge in the area. Prerequisite: Permission of instructor/department chairperson.

**EDUCATION 598. TOPICS**  
***Three credits***  
Advanced study of topics of special interest not extensively treated in regular courses.

**EDUCATION 599. SHORT COURSES**  
***One to three credits***  
These courses treat a variety of topics, usually on a condensed schedule basis. Designed to investigate problems in the field, these courses provide an opportunity for practicing pro-
professionals to study current issues under qualified leadership. Departmental approval is re-
quired if credits are to be applied to meet degree requirements. A maximum of six credits
may be used as electives to meet degree requirements. Credit is given at the rate of one-
half semester hour for each eight hours of class work.

AREA IX: EDUCATIONAL ADVANCED METHODS (EDAM)

EARLY LITERACY COURSE SERIES

EDAM 5001. EARLY LITERACY: GUIDING PRINCIPLES AND LANGUAGE
DEVELOPMENT (K-3) Three credits
This course will set the stage for the entire Comprehensive Early Literacy Series. It begins
by introducing Scientifically-Based Reading Research, and what it means regarding teach-
ing students to read. Comprehensive Literacy Instruction and the principles that guide it
will be covered. The Gradual Release of Responsibility Model will be introduced as a strat-
egy for moving students to independent learning. Finally, the importance of language devel-
opment instruction and how it relates to guiding principles will be connected. Prerequisite course for the MS in Education with a major in Early Childhood
Literacy program.

EDAM 5002. WORD STUDY K-3: PRINT AWARENESS, LETTER KNOWLEDGE,
PHONICS, AND HIGH FREQUENCY WORDS Three credits
The course begins with a look at the core beliefs about teaching and learning and a review
of the Gradual Release of Responsibility Model. The learner will then consider what com-
prehensive early literacy is and how the Gradual Release of Responsibility Model is applied
to it, as well as how to develop a comprehensive early literacy assessment system. The learn-
er will also examine phonological awareness, the five components of word study, and the
role of accuracy in comprehensive early literacy.
Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language
Development (K-3)

EDAM 5003. FLUENCY AND VOCABULARY DEVELOPMENT (K-3) Three credits
Assessing and improving oral reading fluency are explored, as well as vocabulary develop-
ment activities in the context of five research-based methods for a teaching vocabulary.
Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language
Development (K-3)

EDAM 5004. DEVELOPING COMPREHENSION, PART I (K-3) Three credits
The course begins with a review of the core beliefs about teaching and learning, the
Guiding Principles, and the Gradual Release of Responsibility Model. The learner will then
understand what comprehension is and why it should be studied, including the role of oral
language, phonics, fluency, and vocabulary development. This will be followed by an intro-
duction to literary genres and elements and structures of text. The learner will then con-
sider comprehension strategies, as well as how comprehension can be assessed.
Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language
Development (K-3)
EDAM 5005. DEVELOPING COMPREHENSION, PART II (K-1)  Three credits
The course begins with a review of the core beliefs about teaching and learning, the Guiding Principles, and the Gradual Release of Responsibility Model. The learner will review what comprehension is and why it should be studied. This will be followed by modeling of comprehension strategies used individually. The learner will also examine tools to support comprehension instruction strategies. Next, the learner will examine techniques known as interactive read alouds/think alouds and shared reading and see modeling of comprehension strategies used with these techniques. Finally, the course will show how comprehension can be assessed.
Prerequisite: EDAM 5004 Developing Comprehension Part I (K-3)

EDAM 5006. DEVELOPING COMPREHENSION, PART II (2-3)  Three credits
The course begins with a review of the core beliefs about teaching and learning, the Guiding Principles, and the Gradual Release of Responsibility Model. The learner will review what comprehension is and why it should be studied. This will be followed by modeling of comprehension strategies used individually. The learner will also examine tools to support comprehension instruction strategies. Next, the learner will examine techniques known as interactive read alouds/think alouds and shared reading and see modeling of comprehension strategies used with these techniques. Finally, the course will show how comprehension can be assessed.
Prerequisite: EDAM 5004 Developing Comprehension Part I (K-3)

EDAM 5007. DIFFERENTIATED SMALL GROUP INSTRUCTION (K-1)  Three credits
The course begins with a review of the core beliefs about teaching and learning, the Guiding Principles, and the Gradual Release of Responsibility Model. The course covers what differentiated small group instruction is, why it is used, and how the Guiding Principles apply to it. This will be followed by considering the developmental stages of learning to read and the teaching emphasis at each stage. The course will then cover how to use assessment data to group and regroup students for differentiated instruction. Then, the learner will consider differentiated systematic and explicit instruction and learn what the lesson components are, how to plan the lesson, and how to manage the classroom. Finally, the course will cover how to create a partnership with parents and how to communicate with them.
Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language Development (K-3)

EDAM 5008. DIFFERENTIATED SMALL GROUP INSTRUCTION (2-3)  Three credits
The course begins with a review of the core beliefs about teaching and learning, the Guiding Principles, and the Gradual Release of Responsibility Model. The course covers what differentiated small group instruction is, why it is used, and how the Guiding Principles apply to it. This will be followed by considering the developmental stages of learning to read and the teaching emphasis at each stage. The course will then cover how
to use assessment data to group and regroup students for differentiated instruction. Then, the learner will consider differentiated systematic and explicit instruction and learn what the lesson components are, how to plan the lesson, and how to manage the classroom. Finally, the course will cover how to create a partnership with parents and how to communicate with them.

Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language Development (K-3)

EDAM 5009. DEVELOPING INDEPENDENT READERS (K-3) Three credits
The course begins with a review of the core beliefs about teaching and learning, the Guiding Principles, and the Gradual Release of Responsibility Model. The learner will explore the how, what, and why of independent reading and how it relates to the 7 Guiding Principles. The learner will consider the classroom environment and methods they can use to promote independent reading. The course will also explore the implementation and management of independent reading as well as how to create partnerships to support it.

Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language Development (K-3)

EDAM 5010. CONNECTING READING AND WRITING (K-1) Three credits
In this course, learners will understand how the reciprocal processes of connecting reading and writing accelerate student learning in both areas. This course will provide the research, the continuum of development, and resources for instructional techniques, assessment and record keeping. The learner will apply learned concepts and focus on student achievement.

Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language Development (K-3)

EDAM 5011. CONNECTING READING AND WRITING (2-3) Three credits
In this course, learners will understand how the reciprocal processes of connecting reading and writing accelerate student learning in both areas. This course will provide the research, the continuum of development, and resources for instructional techniques, assessment and record keeping. The learner will apply learned concepts and focus on student achievement.

Prerequisite: EDAM 5001 Early Literacy: Guiding Principles and Language Development (K-3)

EDAM 5012. MASTER TEACHER PRACTICUM: APPLYING ACTION RESEARCH TO DEVELOP A RESULTS-DRIVEN EARLY LITERACY CLASSROOM Six credits
This practicum is designed to bring all course content and application learning together in the implementation of a comprehensive literacy classroom. Included will be a baseline assessment for the entire class, data-informed instruction, progress monitoring framed with the Response to Intervention Model. Participants will keep a portfolio of classroom data, instruction, interventions, and a reflection of how the class is progressing, as well as individual students. This will be a whole class, whole year action research study with documentation of where students began and where they ended and what instruction/interventions were provided to maximize student proficiency. The practicum will culminate with a paper
that will document and reflect on the experience.

Prerequisite: Completion of Early Literacy Series (8 courses) EDAM 5001-5010/11

EDAM 5013. TEACHER LEADERSHIP Three credits
After understanding the meaning of teacher leadership, learners will explore their own school’s culture, their impact on learning, and the power of reflective practice. Teacher leaders are needed in order to facilitate effective change in school culture and student achievement. The course begins with a review of the core beliefs and guiding principles about teacher leadership and explores how schools are rapidly changing and the complexity of the change. Learners will experience various tools of reflection throughout the course, explore the impact of school culture on learning, and understand the behaviors and attitudes of teacher leaders.

Prerequisite: Completion of Early Literacy Series (8 courses) EDAM 5001-5010/11

COACHING COURSE SERIES

EDAM 5020. INSTRUCTIONAL COACHING I Three credits
Instructional Coaching I defines instructional coaching and provides depth on initial coaching strategies used by new coaches as they develop their role within a school.

Prerequisite: EDAM 5013 Teacher Leadership

EDAM 5021. INSTRUCTIONAL COACHING II Three credits
Instructional Coaching II provides additional coaching strategies used after the role has been established and provides depth on evaluating program success using student assessment results.

Prerequisite: EDAM 5020 Instructional Coaching I

EDAM 5022. PROBLEM-BASED APPROACH TO INSTRUCTIONAL COACHING Three credits
This is a comprehensive instructional coaching course designed to address a range of grade levels and content areas. It provides examples through a case study approach of dealing with content areas and grade levels that span K-12 and are unique to specific certification areas and the teaching dilemmas and situations that are encountered when coaching K-12 teachers. Issues arising with special education, racial and socio-economic diversity are also addressed.

Prerequisite: EDAM 5013 Teacher Leadership

EDAM 5023. PROBLEM-BASED APPROACH TO K-3 LITERACY COACHING Three credits
This course is specific to the intended content area. It provides specific examples through a case study approach of dealing with both the content area and grade range unique to the intended certification and the teaching dilemmas and situations that are encountered when coaching teachers. Issues arising with special education, racial and socio-economic diversity are also addressed.

Prerequisite: EDAM 5013 Teacher Leadership
EDAM 5030. Teaching in the 21st Century  
This course lays the foundation by answering the question, “Why do I need to change my instruction?” Through this course, many learners will understand that student disinterest and poor achievement can be linked to the use of 20th century teaching strategies being used on 21st century minds. This course will allow learners to reflect on their current instruction in light of what 21st century students need. It will provide a systems view of what needs to change in the classroom and in the school system. The online learner will assess these needs and be introduced to the pedagogical strategies used, including inquiry, project-based learning, and differentiated instruction. Prerequisite course to all other courses in the MS in 21st Century Teaching & Learning.

EDAM 5031. Action Research for Educational Change  
Action research is applied research educators can do within the school environment to improve practice, from instruction to learning. Knowledge and skill will be developed in designing action research, using both quantitative and qualitative data collection methods, to inform and improve practice. Prerequisite: EDAM 5030 Teaching in the 21st Century

EDAM 5032. Using Assessment to Guide Instruction  
Using data-driven instruction to guide teaching and learning is critical in the attainment of student learning outcomes. Educators will learn to use assessments to plan, modify, and differentiate instruction, as well as to assess mastery of content and academic standards through the selection of appropriate content and the design of varied assessments to lead to the interpretation and application of data from multiple assessment sources. (cross-listed with ED 520). Prerequisite: EDAM 5030 Teaching in the 21st Century

EDAM 5033. Developing Reading & Writing Across the Curriculum  
The attainment of higher levels of literacy in adolescent learners requires the development of literacy skills across all curricular areas. This course will enable educators to develop and refine secondary students’ skills in reading and writing, as well as speaking and listening through the design of integrative experiences in content area instruction that are both student-centered and performance-based. Prerequisite: EDAM 5030 Teaching in the 21st Century

EDAM 5034. Applying Advanced Technology to Support Standards-based Instruction  
This course introduces students to cutting-edge instructional technologies and the ways it can be used to support standards-based instruction. Ubiquitous use of technology will be emphasized to create enriched and motivating authentic learning experiences for students. Prerequisite: EDAM 5030 Teaching in the 21st Century

EDAM 5035. Teaching Authentic Content in the 21st Century  
This course shows teachers of specific subject areas how to provide an authentic experience
for their students by using the previously learned methods to transform their teaching into having students engage in learning and activities as people actually would in the real world.

Prerequisite: EDAM 5030 Teaching in the 21st Century

EDAM 5036. Differentiated Instruction to Meet the Needs of All Learners Three credits

This course will explain how learners can determine the needs and learning styles of their students in order to differentiate instruction so that the needs and learning styles of students are met. Prerequisite: EDAM 5030 Teaching in the 21st Century

EDAM 5037. Inquiry-based Learning in the 21st Century Three credits

This course explains that inquiry-based learning helps students “learn how to learn” through observation, reason, critical thinking, and the ability to justify or question knowledge. This course also allow learners to understand that inquiry-based learning helps students learn more by asking questions and doing investigations in order to learn, with the teacher acting more as a consultant. Prerequisite: EDAM Teaching in the 21st Century

EDAM 5038. Project-based Learning in the 21st Century Three credits

This course will explain how project-based learning addresses learning though completing projects that foster skills in communication, collaboration, networking, research, using technology, and critical thinking. Prerequisite: EDAM 5030 Teaching in the 21st Century

EDAM 5039. Applying 21st Century Teaching to Educational Practice Three credits

This capstone course requires secondary educators to transfer the knowledge and skills attained in this program to practice through authentic teaching and learning experiences. Projects that demonstrate the mastery of program goals and objectives will be planned, implemented, and reflected upon in a cumulative experience that enables educators to demonstrate their mastery of 21st century pedagogy. Prerequisite: Completion of all courses in the 21st Century Teaching & Learning M.S. program

AREA X: SCHOOL BUSINESS LEADERSHIP (SBL)

SBL 501. PUBLIC RELATIONS AND SCHOOL COMMUNICATIONS Three credits

Communications and community relations are the responsibility of all professionals who make up the educational community. Dealing with stakeholders and creating “buy-in” and support for school-sponsored programs is a critical factor in a formula for educational success. This course is designed to help participants prepare and manage effective communications strategies related to district-wide and other pertinent educational issues. Contents will be geared toward the many constituencies who have a vested interest in the school, including internal, external and media groups. The course will also provide a legal context for release of information. Participants will ultimately design a plan for effective communications related to their respective role in the school.
SBL 502. SCHOOL FACILITY MANAGEMENT Three credits
This course is designed to allow participants to develop competency in facilities management to support an optimal teaching and learning environment. Topics include facilities management concepts and techniques that protect capital investments, insure health and safety of students and staff, enhance day-to-day operations and support educational performance of school programs.

SBL 503. FINANCIAL OPERATIONS OF SCHOOL DISTRICTS Three credits
This course is an examination of financial reporting and audit requirements, internal control; cash management principles; and payroll and benefit management and accounting. Subject areas are approached with an emphasis on practical application in a school district, vocational-technical school, or intermediate unit business office. Course of study involves a core text, independent research, and work-connected projects.

SBL 504. FINANCIAL PLANNING AND MANAGEMENT FOR SCHOOL BUSINESS Three credits
This course focuses on the study of financial planning and management functions in educational institutions. Topics covered include: public education funding, budgetary planning and reporting using various models, and resource allocation and its impact on students. Revenues and expenditures for schools are examined and forecasted. A communication plan is developed to share the impact of the financial projections to the appropriate stakeholders. This course requires the completion of a rigorous on line component of authentic simulations and/or field experience in applying the fundamental concepts of school financial planning and management.

SBL 505. HUMAN RESOURCES IN EDUCATION Three credits
This course will cover advanced topics in human resources in education. The course will provide practical human resource information for students to use in their current jobs, or to prepare them for a career in human resources in education. Areas to be covered include recruitment, selection, compensation, fringe benefits, performance evaluation, certification, and labor relations.

SBL 506. MATERIALS MANAGEMENT IN SCHOOLS Three credits
This course will examine various aspects of purchasing, inventory, fixed assets and real estate management in educational settings. Participants will gain practical application experience so that district needs in support of the educational process can be met. Subject areas include, but are not limited to, the preparation and administration of competitive bids, ethical practices in purchasing and contract management, requisitions, management of hazardous materials, and capital assets.

SBL 507. INFORMATION TECHNOLOGY IN EDUCATION Three credits
This course is designed to inform participants in the various areas of technology planning and implementation in a school district on the information technology and management side of the equation. The course covers topics in areas including: IT systems management,
planning, data management, project management, fiscal management and purchasing and staffing / training issues.

**SBL 508. STUDENT TRANSPORTATION**
Three credits
The purpose of this course is to provide students with the concepts, procedures and tools necessary to manage a student transportation system effectively. By analyzing utilization of resources, personnel and processes students will be introduced to a broad view of school transportation issues. The course will provide students with opportunities for research and discussion on school transportation themes thereby enhancing the student’s ability to develop an efficient and safe student transportation system.

**SBL 509. FOOD SERVICE IN EDUCATION**
Three credits
This course will examine the role of food services in school districts. Participants will study such topics as nutrition and its role in the educational process, food safety, fiscal responsibility, state regulations, managing the bid process and kitchen facilities, marketing and staffing. Subject matter will be approached with an emphasis on practical application either in the student’s current position or as preparation to obtain future employment in the field.

**SBL 510. LEADERSHIP FOR SCHOOL BUSINESS**
Three credits
This course is designed to examine theories of leadership and analyze applications within the school environment. The topics addressed deal with a wide range of school related processes targeted at school improvement and overall student performance.
Prerequisite(s): all courses SBL 501 – SBL 509 or permission of program director

**DOCTORATE OF EDUCATION IN EDUCATIONAL LEADERSHIP**

**Doctoral Core Courses (Required for all Ed.D. students)**

**Leadership Core Courses** Twelve credits

**ED 610. ETHICS FOR EDUCATIONAL LEADERS**
Three credits
This course focuses on the principles, practices and issues related to ethics in educational leadership within a variety of institutional settings. The ethical dimensions of leadership will be examined through both traditional and nontraditional paradigms. Students will reflect on personal ethical stances, examine the influence of ethics and values on decision-making, and analyze and critique ethical issues in a variety of contexts to frame their professional ethical perspectives.

**ED 612. LEADERSHIP, DIVERSITY AND SOCIETAL CHANGE**
Three credits
This course examines the impact of diversity, culture, ethnic origin and societal change on educational institutions and the emerging leadership styles resulting from these factors. This course is designed to better prepare leaders to meet the challenges of cultural diversity and rapid societal change in organizations. Attention is given as to how language, gender, race, tradition, education, economic structure, societal transitions and global events interact with
organizational philosophy to create behavioral norms at all levels. The influence of these factors on leaders’ behaviors, as well as their interactions with diverse groups both inside and outside the organization, will be studied.

ED 614. LEADERSHIP FOR CONTEMPORARY EDUCATIONAL REFORM  
Three credits
This course explores different strategies for bringing about change leading to institutional improvement and reform. Current trends in curriculum and instruction are examined with a focus on research-based practices that are proven to be effective and sustainable. Students will consider the many critical factors that shape and influence efforts to bring about reform in educational institutions, including vision, culture and climate, group dynamics, decision-making and communication processes, change theory, and influences of internal and external social systems. Special attention is given to the educational leader's role in building organizational capacity to change.

ED 616. PUBLIC RELATIONS: ISSUES AND TRENDS FOR EDUCATIONAL LEADERS  
Three credits
This course will focus on understanding contemporary public relations issues and trends with emphasis on public relations in educational institutions, changes in society and in educational institutions, public opinions, and political contexts; understanding of public relations relative to public relations’ theory and practice, legal and ethical aspects, technology, and public relations in a communication context; learning about educational leadership responsibilities relative to planning in public relations; setting goals and developing strategies, working with the media, responding to crisis, collecting and analyzing decision-oriented data, public relations in a funding campaign, and evaluating public relations programs.

Research Core Courses  
Nine credits

ED 681. EDUCATIONAL RESEARCH  
Three credits
This course is designed to provide foundational knowledge of quantitative and qualitative research methodologies and to develop skills to select an appropriate approach for a given research problem. Attention is given to research design factors such as sampling, validity, reliability and the need for ethical safeguards. Students examine and critique published research, learn to conduct a thorough and professional search of research-based resources on a selected topic, and apply APA (American Psychological Association) guidelines to written research.

ED 683. STATISTICAL METHODS IN EDUCATIONAL RESEARCH  
Three credits
A primary goal of this course is to provide each candidate with the basic statistical skills necessary to read, understand and evaluate professional articles in refereed journals and other sources of professional research. Another goal is to provide the knowledge and skills necessary to conduct their own research activities. The topics covered in this course will provide students with sufficient skills to begin a research project. Students will learn statistical methods commonly found in research in an effort to enable them to publish a paper,
a thesis or a dissertation. The overall goal of this course is to give students the basics of statistics needed to be a competent professional, enabling them to do their own work rather than depending on an outside source to answer the scientific or academic questions often associated with educational research.

**ED 685. APPLIED QUALITATIVE AND QUANTITATIVE RESEARCH METHODS**

Three credits

Students will learn how to design qualitative, quantitative and mixed-research studies. Methodologies will be fully reviewed so that each candidate can then construct the most appropriate design for their study. Emphasis will be on the design, collection, management, analysis and interpretation of data as a mode of inquiry into educational issues. Students will refine their knowledge and skills through the critical analysis of various research studies and through the use of the above three research techniques. Prerequisites: ED 681 Introduction to Educational Research and acceptance into the Ed.D. program.

**Dissertation Core Courses**

Nine credits

**ED 697. DISSERTATION PROPOSAL SEMINAR**

Three credits

This seminar is for doctoral students to develop and refine ideas for the doctoral dissertation. Students will utilize research resources, identify a research problem, select an appropriate research design for the given problem, and state the principles for analyzing and evaluating subsequent findings. This course should be taken during or after the last semester of course work in the doctoral program. Prerequisites: Acceptance into the Ed.D. program and successful completion of doctoral core and major coursework. Department permission required.

**ED 698. A & B DISSERTATION**

Six credits

Doctoral students are required to register for six credits of ED 698 (either in one semester - for financial aid eligibility - or over two consecutive semesters) to fulfill their individual dissertation requirements under the advisement of their mentor and dissertation chair. This course is graded pass/fail. Prerequisites: ED 697 Dissertation Proposal Seminar. Department permission required.

**ED 699. DISSERTATION MAINTENANCE**

Zero credits

Doctoral students are required to register for three billable credits of ED 699 each semester (fall and spring) to fulfill their individual dissertation research requirements under the advisement of their dissertation committee chair until the successful completion and defense of the dissertation. This course is not graded. Prerequisites: ED 698 Dissertation. Department permission required.

**MAJOR AREAS OF STUDY**

**K-12 Administration Major Courses** *

**Required Courses**

Thirty credits
ED 623. EDUCATIONAL TECHNOLOGY LEADERSHIP  Three credits
This course will focus on how to organize and provide leadership in instructional technology programs, facilities and resource management, including technological in-service training programs. This course will also include the laws and regulations that govern the selection and utilization of media, sources for funding, and collaboration on development of a grant proposal. Required for M.S. program in Instructional Technology and Ed.D. program/K-12 Administration and Educational Technology majors.

ED 625. PROFESSIONAL DEVELOPMENT & SUPERVISION  Three credits
This course concentrates on the development and supervision of faculty and staff. A range of models of supervision that can be applied in all educational institutions, such as clinical and differentiated supervision, will be examined for their effectiveness in improving instructional performance. Case studies will be utilized to gain understanding of supervision and evaluation processes. The management and design of induction and professional development programs will be analyzed. The laws and policies that govern these programs, as well as employee rights and termination procedures, will be studied. Required for M.S. program in Educational Leadership and Ed.D. program/K-12 Administration and Higher Education Administration majors.

ED 627. ADVANCED ISSUES IN EDUCATIONAL LAW  Three credits
This course focuses on the most current laws at both the state and federal levels and their impact on the operation of educational institutions for leaders. Both state and federal statutes will be examined with a focus on accurate analysis and interpretation of the law through case reviews. Law, legislation and court decisions that may impact the rights and responsibilities of faculty, students and parents will be studied and analyzed. The course is structured to assist educational leaders in acquiring the knowledge and skills necessary to ensure that the management of their educational institution through adherence to the law produces a safe, efficient and effective learning environment for all students. Required for Ed.D. program/K-12 Administration and Higher Education Administration majors. Prerequisite: ED 518 School Law

ED 628. HUMAN RESOURCE DEVELOPMENT AND LABOR NEGOTIATIONS  Three credits
This course examines the influences of major theories of personnel leadership on public and private education. Students will learn about the use of resource management, including labor laws, labor negotiation protocols, recruitment, personnel assistance and development, and evaluation procedures. Also, students will learn to develop and implement professional development programs that reflect teacher/faculty development research and strategies that include technology utilization, simulations of various HRD functions such as labor negotiations focusing on differing perspectives that impinge on the process of creating agreement, living with the agreement, and seeking a successor agreement. Required for Ed.D. program/K-12 Administration and Higher Education majors.
ED 629. STRATEGIC PLANNING FOR PUBLIC AND NON-PROFIT ORGANIZATIONS  Three credits
Students will learn about a variety of planning models, including the Pennsylvania Department of Education’s Strategic Planning Model and the Strategy Change Cycle - a proven planning process used by a large number of organizations throughout the United States. Students will be provided detailed guidance on implementing the planning process and will acquire specific knowledge and skills to make the planning process work successfully in any organization. In addition, new information will be provided to students on creating public value, stakeholder analysis, strategy mapping, balanced scorecards, and collaboration. Finally, case study analysis and field assignments will serve as important components in this course. Required for Ed.D. program/K-12 Administration and Higher Education Administration majors.

ED 650. CURRICULUM, INSTRUCTION AND ASSESSMENT  Three credits
This course will examine cognitive theories of learning for all learners, with a particular focus on research-based practices in instruction for diverse learners in contemporary school settings. Educational leaders will gain a strong background in differentiated modes of instruction, along with the coaching skills needed to work with instructors as they strive to improve and expand their pedagogy to enhance student learning. Current methods of curriculum and program design, development and evaluation will be studied. Implications for supporting and sustaining high-quality instruction and learning will be addressed through the relationships and importance of coherence among curriculum, instruction, and assessment. Required for Ed.D. program/K-12 Administration major.

ED 652. SPECIAL EDUCATION ADMINISTRATION  Three credits
The content of this course is composed of professional problems; standards and procedures; the history of special education, special education philosophy, legal provisions, rules and regulations; major developments and trends at federal, state and local levels; services of other organizations and agencies. Required for Ed.D. program/K-12 Administration major.

ED 654. SCHOOL FINANCE AND FACILITIES ADMINISTRATION  Three credits
The content of this course centers on administrative functions related to the management of school finance and facilities in educational institutions. Topics covered are budget planning related to facilities management, as well as resource allocation and scheduling to maximize the use of school facilities; school finance related to sources of revenue for capital projects and the impact of these projects on the allocation of resources, scheduling of programs, and use of personnel will be studied. Additional topics include management techniques, strategic planning approaches, building assessment, energy issues, technology in schools, community development and contract management. Required for Ed.D. program/K-12 Administration major.

ED 658. ADVANCED STUDIES IN SCHOOL DISTRICT LEADERSHIP  Three credits
This course will prepare future school district leaders for complex situations and special-
ized functions that are performed as part of district oversight in the central office. Students will review their prior coursework in K-12 Administration by compiling and informally assessing their Internship Competency Portfolio to determine the focus areas for their superintendent internship. Required for Ed.D. program/K-12 Administration major. Prerequisites: Completion of Ed.D. Leadership core and K-12 School Administration courses with the exception of ED 659.

**ED 659. SUPERINTENDENT INTERNSHIP (90 hours)**
Three credits

This internship will include a minimum of 90 hours of field-based central office administrative experience. The candidate will engage in specific leadership tasks, behaviors and projects to achieve the program’s competencies and document the attainment of these competencies through an Internship Competency Portfolio. Required for Ed.D. program/K-12 Administration major. Prerequisites: Completion of Ed.D. Leadership core and all K-12 School Administration courses.

**Higher Education Major Courses *\**

**Required Courses**
Thirty credits

**ED 625. PROFESSIONAL DEVELOPMENT & SUPERVISION**
Three credits
(cross listed as ED 578)
This course concentrates on the development and supervision of faculty and staff. A range of models of supervision that can be applied in all educational institutions, such as clinical and differentiated supervision, will be examined for their effectiveness in improving instructional performance. Case studies will be utilized to gain understanding of supervision and evaluation processes. The management and design of induction and professional development programs will be analyzed. The laws and policies that govern these programs, as well as employee rights and termination procedures, will be studied. Required for M.S. program in Educational Leadership and Ed.D. program/K-12 Administration and Higher Education Administration majors.

**ED 627. ADVANCED ISSUES IN EDUCATIONAL LAW**
Three credits

This course focuses on the most current laws at both the state and federal levels and their impact on the operation of educational institutions for leaders. Both state and federal statutes will be examined with a focus on accurate analysis and interpretation of the law through case reviews. Law, legislation and court decisions that may impact the rights and responsibilities of faculty, students and parents will be studied and analyzed. The course is structured to assist educational leaders in acquiring the knowledge and skills necessary to ensure that the management of their educational institution through adherence to the law produces a safe, efficient and effective learning environment for all students. Required for Ed.D. program/K-12 Administration and Higher Education Administration majors. Prerequisite: ED 518 School Law

**ED 628. HUMAN RESOURCE DEVELOPMENT AND LABOR NEGOTIATIONS**
Three credits

This course examines the influences of major theories of personnel leadership on public
and private education. Students will learn about the use of resource management, includ-
ing labor laws, labor negotiation protocols, recruitment, personnel assistance and develop-
ment, and evaluation procedures. Also, students will learn to develop and implement pro-
fessional development programs that reflect teacher/faculty development research and
strategies that include technology utilization, simulations of various HRD functions such
as labor negotiations focusing on differing perspectives that impinge on the process of cre-
ating agreement, living with the agreement, and seeking a successor agreement. Required
for Ed.D. program/K-12 Administration and Higher Education majors.

ED 629. STRATEGIC PLANNING FOR PUBLIC AND NON-PROFIT
ORGANIZATIONS  Three credits
Students will learn about a variety of planning models, including the Pennsylvania
Department of Education’s Strategic Planning Model and the Strategy Change Cycle - a
proven planning process used by a large number of organizations throughout the United
States. Students will be provided detailed guidance on implementing the planning process
and will acquire specific knowledge and skills to make the planning process work success-
fully in any organization. In addition, new information will be provided to students on cre-
ating public value, stakeholder analysis, strategy mapping, balanced scorecards, and collabora-
tion. Finally, case study analysis and field assignments will serve as important components
in this course. Required for Ed.D. program/K-12 Administration and Higher Education
Administration majors.

ED 660. HIGHER EDUCATION INSTITUTIONS AND ADULT LEARNERS
Three credits
This course engages doctoral students in an investigation of the history and development
of higher education institutions, with emphasis on the adult learners who attend them.
Included in this course is a comparative study of the philosophies, objectives and functions
of various types of higher education institutions and the adult learning population in con-
temporary colleges and universities. The various settings in which adults learn and the vari-
ety of objectives adults have for learning are also studied. Required for Ed.D.
program/Higher Education Administration major.

ED 662. FACULTY AND ACADEMIC GOVERNANCE IN HIGHER EDUCATION
Three credits
The purpose of this course is to provide an intensive introduction to the organization and
governance of American colleges and universities. It is designed to familiarize students with
the faculty, academic and administrative contexts and organizational cultures within which
they may work. The focus of study will include both individuals and groups (organizational
behavior) and organizations themselves (organizational theory). Required for Ed.D. pro-
gram/Higher Education Administration major.

ED 664. FINANCIAL MANAGEMENT IN HIGHER EDUCATION  Three credits
The purpose of this course is to expose students to both theoretical and applied concepts
of higher education financial management concepts and practices. Emphasis will be placed
on developing familiarity with the financial terminology and competencies that are necessary for successful administrative performance within a higher education institution. Upon completion of the course, students should possess a greater understanding of the subject matter and inherent issues of higher education financial management. Required for Ed.D. program/Higher Education Administration major.

ED 665. INSTITUTIONAL ADVANCEMENT IN HIGHER EDUCATION Three credits
This course enables doctoral students to refine the knowledge, skills and dispositions needed to plan and execute sound and innovative approaches to advance the institution’s mission by increasing private and public financial support, promoting awareness of the institution to key publics, and involving constituents in the life of the institution. Students will be involved in problem solving and decision-making related to institutional advancement. Traditional and evolving sources of financial support will be examined with an emphasis on grant writing. Required for Ed.D. program/Higher Education Administration major. Prerequisite: ED 664 Financial Management in Higher Education.

ED 668. STUDENT SERVICES AND ENROLLMENT MANAGEMENT IN HIGHER EDUCATION Three credits
This course examines the comprehensive nature of student affairs as a vital component in the evolving learner-centered environments of higher education. Theory and effective practice are used to guide the discussion, investigate the issues, and generate solutions. Students investigate and seek potential solutions to authentic problems facing leaders in student affairs, such as those concerning student enrollment management, student diversity, student induction, advising and counseling, placement testing, career development, residential life, food services, health services, student activities, Greek organizations, athletics, security and discipline. Required for Ed.D. program/Higher Education Administration major.

ED 669. INTERNSHIP IN HIGHER EDUCATION ADMINISTRATION (90 hours) Three credits
This internship is tailored to the needs and interests of the candidate in higher education and designed to familiarize students with at least three administrative service units within an institution of higher education. A portfolio giving evidence of competencies covered, projects executed and evaluations will be submitted at the termination of the internship. Periodic meetings will be scheduled for evaluation, discussion and examination of technique and progress. Required for Ed.D. program/Higher Education Administration major.

Educational Technology Major Courses *
Note: Courses with * are required for Instructional Technology Specialist Certification. Courses designated with √ are required for the doctorate.

Required from list below Thirty Credits

ED 623. EDUCATIONAL TECHNOLOGY LEADERSHIP * √ Three credits
(cross listed as ED 587)
This course will focus on how to organize and provide leadership in instructional technology programs, facilities and resource management, including technological in-service train-
ing programs. This course will also include the laws and regulations that govern the selection and utilization of media, sources for funding, and collaboration on development of a grant proposal. Required for M.S. program in Instructional Technology and Ed.D. program/K-12 Administration and Educational Technology majors.

**ED 630. DISTANCE LEARNING AND EPEDAGOGY**  
*Three credits*  
(cross listed as ED 529)  
This course is designed to explore the design, development and implementation of web-based courseware. Appropriate strategies for delivering instruction online and the use of various development tools to create interactive, engaging and instructionally sound online instructional materials will be analyzed.

**ED 631. PRINCIPLES OF INFORMATION SECURITY * Three credits**  
(cross listed as ED 577)  
With a focus on the educational environment, this course will discuss the principles of information security, building a clear understanding of the foundations of information security, the principles on which managerial strategy can be formulated and the technical solutions available to technology coordinators. Prerequisites: ED 635 Integrating Technology into the Curriculum and ED 637 Systems Design Analysis.

**ED 633 (ED 579) MEDIA DESIGN * √ Three credits**  
(cross listed as ED 579)  
This course is designed to give specific and realistic examples of how different types of media and instructional technology can complement each other in the computer-age classroom. Emphasis will be given to the design and production of instructional materials using text, video, audio and computer-based and photographic formats for use in both distance learning and traditional classrooms. Required for M.S. in Instructional Technology Program and Ed.D. program/Educational Technology major. Prerequisite: ED 625 (585) Integrating Technology into the Curriculum or equivalent.

**ED 635. INTEGRATING TECHNOLOGY INTO THE CURRICULUM * √ Three credits**  
(cross listed as 585)  
The course will present models of instructional design to provide a theoretical framework in the application and integration of computer technology into the K-12 curriculum. Participants will develop a portfolio of computer-generated materials for their classroom. Required for M.S. Programs/Classroom Technology, Instructional Technology, Educational Leadership and Special Education programs and Ed.D. program/ Educational Technology major. Prerequisite: ED 580 Introduction to Educational Computing or equivalent technology experience.

**ED 637. SYSTEMS DESIGN AND ANALYSIS * Three credits**  
(cross listed as ED 588)  
Students will explore the design of present-day computer systems. Topics include comput-
er architecture and hardware, telecommunications, networking and general operating systems. Required for M.S. program in Instructional Technology.

**ED 638. INSTRUCTIONAL TECHNOLOGY: MODELS AND METHODS ★**

*Three credits*

cross listed as ED 589

A “wide area” look is taken into technology integration. An investigation into what the responsibilities of a technology coordinator will be - relating technology and thinking processes, the cognitive effects of technology integration, materials acquisition and placement and general administrative strategies. Required for M.S. program in Instructional Technology. Prerequisite: ED 635 Integrating Technology into the Curriculum or equivalent.

**ED 639. INSTRUCTIONAL TECHNOLOGY INTERNSHIP ★**

*Three credits*

cross listed as ED 591

This course involves participation in a field experience to observe the use of technology to support instruction, the management of technology resources in educational settings, and the evaluation of effectiveness of technology resources for teaching and learning, and application of technology resources to support instruction in classroom settings. Required for the Pennsylvania Instructional Technology Specialist certification. Prerequisites: ED 623 (587) Educational Technology Leadership, ED 637 Systems Design and Analysis, ED 638 Instructional Technology: Models and Methods (or equivalent) and permission of the director.

**ED 640. INSTRUCTIONAL DESIGN ✓**

*Three credits*

This course will explore basic principles of design and analyze various theories of instructional design. Students will design and develop instructional media and materials for use in curriculum development. Required for Ed.D. Program/Educational Technology major.

**ED 641. INSTRUCTIONAL DEVELOPMENT AND DELIVERY**

*Three credits*

Students will utilize various learning theories as they explore the tools, techniques and competencies characteristic of expert designers. They will create instructional materials in accordance with current design research and theory and will explore future directions in design theory and practice.

**ED 642. DIGITAL VIDEO AND INSTRUCTION ✓**

*Three credits*

This course will explore the application of instructional design principles to video production. Instructional strategies for higher-order learning will be incorporated into video lessons created by students. Essential camera and editing techniques will be a “hands-on” part of the course. Required for Ed.D. program/Educational Technology major.

**ED 643. TRENDS IN INSTRUCTIONAL TECHNOLOGY**

*Three credits*

This course reviews the intellectual foundations and history of Instructional Technology practice as students explore the implications of current issues dealing with technology in education. Factors that are likely to affect the future of the instructional technology, includ-
ing developments of newer technologies, contributions of key leaders, and social, political and economic changes, will be explored.

**ED 645. TECHNOLOGY SUPPORTED ASSESSMENT**  
Three credits
The course will review traditional methods of educational assessment and consider ways technology can be used to augment assessment to enhance best practices for teaching and learning.

**ED 646. ADAPTIVE AND ASSISTIVE TECHNOLOGY IN EDUCATION**  
Three credits
This course will provide an awareness of contemporary adaptive and assistive technologies available to improve education. Students will explore technology options specific to a variety of disabilities/situations. Sources of support for acquiring and maintaining assistive technology devices for students will also be discovered. Students explore methods and organizational approaches to integrating assistive and educational technologies in the classroom. Options such as computer laboratories, one computer in the classroom and use of classroom assistive technology stations are explored, evaluated and discussed.

**ED 647. PROJECT-BASED WEB DESIGN AND DEVELOPMENT FOR LEARNING √**  
Three credits
Students will apply the tools, techniques and competencies of expert designers as they create learning activities for the World Wide Web. Contemporary web authoring tools will be used to develop web sites that motivate learners. Required for Ed.D. program/Educational Technology major.

**ED 648. EDUCATIONAL TECHNOLOGY INNOVATIONS FOR CURRICULUM DESIGN**  
Three credits
This course will explore cutting-edge technology as it impacts education. Students will research ways to utilize current and developing technologies to improve curriculum design. The value of technology in the improvement of the educational process will be explored.

**ED 649. INTERNSHIP IN EDUCATIONAL TECHNOLOGY LEADERSHIP √**  
*(pending University approval)*

**BIOLOGY/SECONDARY EDUCATION**  
Michael A. Steele, Ph.D.  
Chairperson

**DEGREE REQUIREMENTS**
Candidates for the degree of Master of Science in Education with a concentration in Secondary Education/Biology must take 18 hours of biology courses numbered 400 or above. Chemistry 361 and 362 may be taken for credit toward the biology component with the prior approval of the Chairperson of the Biology Department. Requirements for the education component of the Master of Science degree in Education with a major in biology, are listed under Education earlier in this bulletin.
**Special Notice:** Biology courses shown below are only offered during daytime class periods. Biology 466 and 468 are offered in alternate summers.

### COURSE DESCRIPTIONS

**BIO 406. INVERTEBRATE BIOLOGY** *Four credits*
A study of the major invertebrate phyla with respect to their taxonomy, evolution, morphology, physiology and ecology. Lecture, three hours a week, laboratory, three hours a week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

**BIO 411. COMPARATIVE PHYSIOLOGY** *Four credits*
Comparative physiology encompasses the study of organ functions and organ system functions in different animal groups. Emphasis will be on the systemic physiology of vertebrate animals. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

**BIO 412. PARASITOLOGY** *Four credits*
Parasitology is the study of organisms that live on or within other organisms and the relationship of these organisms to their hosts. This course deals with the common parasites that infect man and other animals. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

**BIO 414. COMPARATIVE VERTEBRATE ANATOMY** *Four credits*
This course deals with the evolution and anatomy of the organ systems of vertebrates. Lectures survey the comparative anatomy of the vertebrate classes. Laboratory Dissections include the Lamprey, Shark, Mud Puppy, and Cat in detail. Lecture three hours per week, laboratory three hours per week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122.

**BIO 421. MAMMALIAN PHYSIOLOGY** *Four credits*
This course examines the function of mammalian systems with regard to homeostasis, metabolism, growth and reproduction. Normal physiological processes as well as some pathophysiological situations are covered. The emphasis is on human physiology; however, other mammalian systems are discussed to demonstrate physiological adaptability to various environmental situations. Laboratory exercises include physiological experimentation in living systems and in computer simulations. Lecture: three hours; Laboratory: three hours. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122, 226, or permission of instructor.

**BIO 423. FUNCTIONAL HISTOLOGY** *Four credits*
This course emphasizes the microscopic examination of mammalian tissues from morphological and physiological perspectives. Reference is made to organ embryogenesis to support the
understanding of organ form and function. Tissue preparation for histological examination is demonstrated. Lecture, three hours; laboratory, three hours per week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

**BIO 425. ENDOCRINOLOGY**

Four credits
This course will focus on the structure, biochemistry, and function of mammalian hormones and endocrine glands; arian, amphibian and invertebrate hormones will also be discussed, where relevant. Clinical pathologies resulting from excess or insufficient hormones will be discussed, as this is essential to mastering an understanding of Endocrinology. Laboratory exercises include experimentation in living systems and computer simulations. Lecture: three hours per week; Laboratory, three hours per week. Laboratory Fee: $90.
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

**BIO 426. IMMUNOLOGY AND IMMUNOCHEMISTRY**

Four credits
This course is concerned with the biologic mechanisms and chemistry of reactants and mediators associated with natural and acquired states of immunity, tissue and blood serum responses to infection and immunization, and related patho-physiologic alterations of hypersensitivity phenomena in vertebrate animals and man. A background in microbiology, physiology, and biochemistry is advisable. Lecture, three hours a week; laboratory three hours a week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

**BIO 427. MEDICAL MICROBIOLOGY**

Four credits
Medical Microbiology provides a professional-level introduction to microbiology that is focused on application of microbiology to the study of infectious disease etiology and epidemiology. The laboratory covers techniques used in isolation and identification of microorganisms. Lecture: three hours a week; Laboratory: three hours per week. Laboratory fee: $90.
Prerequisites: Biology 121-122, Chemistry 231-232.

**BIO 428. DEVELOPMENTAL BIOLOGY**

Four credits
A course dealing with the principles of animal development from descriptive, experimental, and evolutionary perspectives. Laboratory work includes both descriptive and experimental embryology as well as more molecular techniques. Lecture, three hours; laboratory, three hours a week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

**BIO 429. VIROLOGY**

Three credits
Virology provides an introduction to the biology of animal viruses. Description of viral molecular architecture and genome organization is followed by a survey of strategies employed for multiplication and regulation of gene expression. Pathogenesis of viral infections is considered from perspectives of viral reproduction strategies and host defense.
Prerequisites: Biology 121-122, 225-226; Chemistry 231-232, 233-234.
BIO 430. INTRODUCTION TO BIOINFORMATICS  Three credits
An introduction to the ways computers are used to make sense of biological information, especially the data generated by the human genome project. Topics covered include databases and data mining, pair-wise and multiple sequence alignment, molecular phylogeny, finding genes in raw DNA sequences, predicting protein and RNA secondary and tertiary structures, generating and analyzing microarray data, DNA fingerprinting, rational drug design, metabolic simulation and artificial intelligence. Offered online alternate spring semesters, with one assignment due each week.

BIO 438. BIOLOGY OF CANCER  Three credits
This lecture course is designed to explore the various concepts and mechanisms associated with the origins, elaborations and future developments in cellular transformation and carcinogenesis. Emphasis is placed on the molecular biology and physiology of these processes; therefore, a solid background in basic biology is required. Oncogenes, tumor suppressor genes and the disruption of homeostasis are covered in detail, while the medical phenomena typically receive a more general level of coverage.
Prerequisites: Biology 121–122, Chm 231–232.

BIO 441. FRESHWATER ECOSYSTEMS  Three credits
A study of the chemical, physical, and biological aspects of fresh water systems. Laboratory investigations will consist of in-depth analysis of local lakes and streams. Lecture, two hours a week; laboratory three hours a week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121–122, 225–226, or permission of instructor.

BIO 443. MARINE ECOLOGY  Three credits
An examination of the biology of marine life within the context of modern ecological principles. The structure and physiology of marine organisms will be studied from the perspectives of adaptation to the ocean as habitat, biological productivity, and interspecific relationships. Emphasis will be placed on life in intertidal zones, estuaries, surface waters, and the deep sea. Two hours of lecture and three hours of laboratory per week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121–122, EES 230, or permission of instructor.

BIO 444. ECOLOGY  Four credits
Ecology examines contemporary ecological thinking as it pertains to the interrelationship of organisms and their environments. Interactions at the population and community levels are emphasized. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee: $90. Offered in alternate years.
Prerequisites: Biology 121–122, 225–226, or permission of instructor.

BIO 445. GENETICS  Four credits
Genetics will present treatment of genetics beyond the introductory level with particular emphasis on populational and molecular aspects of heredity. Topics will include plant and human genetics. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee:
BIO 446. ANIMAL BEHAVIOR  
Four credits  
This course emphasizes behavior as the response of an organism to physical and social environmental change, and covers the processes that determine when changes in behavior occur and what form they will take. Laboratories, using living local fauna, will demonstrate principles discussed in lecture. Lecture, three hours; laboratory, three hours a week. Laboratory fee: $90. Offered in alternate years.  
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

BIO 461. PLANT FORM AND FUNCTION  
Four credits  
An introduction to the morphology, anatomy, cytology, and physiology of plants, with emphasis on the vascular plants. Structural and functional aspects of plants will be interpreted in relation to each other and within ecological and evolutionary contexts. Lecture, three hours per week; laboratory, three hours per week. Laboratory fee: $90. Offered every fall.  
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

BIO 462. PLANT DIVERSITY  
Four credits  
A comprehensive survey of bryophytes, vascular plants and plantlike organisms (fungi and algae) emphasizing their structure, reproductive biology, natural history, evolution, and importance to humans. Lecture, three hours per week; laboratory, three hours per week. Laboratory fee: $90. Offered every spring.  
Prerequisites: Biology 121-122, 225-226, or permission of instructor.

BIO 466. FIELD BOTANY  
Three credits  
This is a specialized summertime field course which emphasizes a taxonomic, phylogenetic, and ecological survey of higher plants indigenous to Northeastern Pennsylvania.  
Prerequisites: Biology 121-122, or permission of instructor. Offered in alternate years.

BIO 468. MEDICAL BOTANY  
Three credits  
A specialized course that provides a scientifically based overview of the ways that plants affect human health. Topics include cultural and historical perspectives of plants and medicine, plants that cause human ailments, plants that cure human ailments, and psychoactive plants. Lecture, two hours per day for five weeks in alternate summers.  
Prerequisites: Biology 121-122, 225, CHM 232, or permission of instructor.

BIO 498. TOPICS  
Variable credit  
A study of topics of special interest not extensively treated in regularly offered courses.  
Prerequisites: Biology 121-122, 225-226, or permission of instructor.
ADMISSION
The applicant should have a baccalaureate degree from an accredited institution, with a minimum of 35 semester credit hours in chemistry. In addition, a year of physics and a working knowledge of calculus and differential equations are required. Students deficient in any of these areas may, at the discretion of the chemistry faculty, be granted provisional admission.

DEGREE REQUIREMENTS
General requirements for the Master of Science in Education with a program in Secondary Education/Chemistry are listed under Education earlier in this bulletin. Specific chemistry requirements will be determined with the student’s advisor in the chemistry department.

COURSE DESCRIPTIONS

CHM 421. ADVANCED INORGANIC CHEMISTRY Three credits
Introduction to ligand field theory; chemistry of the first transition series, organometallic, and pi acceptor compounds; mechanisms of inorganic reactions. Class three hours a week. Prerequisites: CHM 222 and 252

CHM 423. ADVANCED INORGANIC CHEMISTRY LABORATORY One credit
Synthesis of coordination and organometallic compounds, and spectroscopic characterization of the products using modern laboratory techniques. Fee $85. Prerequisite: CHM 232

CHM 461. BIOCHEMISTRY I Three credits
This course is a study of the physical and chemical properties of proteins, nucleic acids, fatty acids and carbohydrates emphasizing the relationship between the chemical structure and the biological function. The course includes the physical methods of biochemistry, enzyme kinetics, bioenergetics and nucleic acid transcription and translation. Prerequisite: CHM 232

CHM 462. BIOCHEMISTRY II Three credits
This course is a study of the catabolism and anabolism of carbohydrates, fatty acids and amino acids. The course emphasizes the regulation and integration of major metabolic pathways, including glycolysis, the Kreb’s cycle, electron transport, gluconeogenesis, pentose phosphate, fatty acid metabolism and amino acid metabolism. Prerequisite: CHM 232

CHM 463. BIOCHEMISTRY LABORATORY One credit
Laboratory experiments that emphasize biochemical techniques used in isolation and characterization of macromolecules. Included in the course are various chromatographic techniques, electrophoresis, spectrophotometry and classic biochemical methods. Laboratory three hours a week. Pre-lab, one hour per week. Fee $85. Prerequisite: CHM 461 or permission of instructor
CHM 498. TOPICS  
Three credits
A study of topics of special interest not extensively treated in regularly offered courses.  
Prerequisite: Permission of the instructor

ENGLISH/SECONDARY EDUCATION  
Lawrence T. Kuhar, Ph.D  
Chairperson

DEGREE REQUIREMENTS
Candidates for the degree of Master of Science in Education with a concentration in Secondary Education/English must take 18 hours of English courses numbered 400 or above.

Requirements for the education component of the Master of Science in Education with a major in English are listed under Education earlier in this bulletin.

COURSE DESCRIPTIONS

ENGLISH 431. STUDIES IN MEDIEVAL ENGLISH LITERATURE  
Three credits
A study of English literature to 1500, exclusive of Chaucer.

ENGLISH 432. STUDIES IN SIXTEENTH-CENTURY LITERATURE  
Three credits
The study of texts produced by the English Renaissance, focused on the evolution of literary, dramatic and cultural works from about 1485 to 1603.

ENGLISH 433. STUDIES IN SEVENTEENTH-CENTURY LITERATURE  
Three credits
The study of seventeenth-century texts, focused on literary, dramatic, and cultural works from about 1603 to 1660.

ENGLISH 434. STUDIES IN EIGHTEENTH-CENTURY LITERATURE  
Three credits
Study of eighteenth-century authors and culture.

ENGLISH 435. STUDIES IN ROMANTIC LITERATURE  
Three credits
Study of the chief poets and prose writers of the Romantic Period.

ENGLISH 436. STUDIES IN VICTORIAN LITERATURE  
Three credits
Study of major writers, works, and topics of the Victorian era.

ENGLISH 440. STUDIES IN CHAUCER  
Three credits
A study of selected major and minor works by Chaucer.

ENGLISH 442. STUDIES IN SHAKESPEARE  
Three credits
A study of selected plays by Shakespeare.

ENGLISH 444. STUDIES IN MILTON  
Three credits
A study of Milton's selected poetry and prose.
ENGLISH 450. STUDIES IN THE ENGLISH NOVEL  Three credits
Study of the novel in English, excluding American writers.

ENGLISH 451. STUDIES IN POSTMODERNISM  Three credits
A study of the major postmodern writers from the 1960s to the present.

ENGLISH 452. STUDIES IN THE AMERICAN NOVEL  Three credits
Study of the American novel from its eighteenth-century beginnings to the present day.

ENGLISH 453. STUDIES IN POSTCOLONIAL LITERATURE  Three credits
Study of colonial and postcolonial literature that examines the effects of British imperial pursuits and provides an overview of major issues within postcolonial studies.

ENGLISH 455. STUDIES IN THE MODERN NOVEL  Three credits
Study of twentieth-century texts focused on a particular theme or movement, as determined by instructor.

ENGLISH 458. STUDIES IN CONTEMPORARY FICTION  Three credits
A study in fiction, including the novel, short story, and novella, written since World War II. Works from English, American and world literature may be included to reflect the diversity of contemporary literature and the emergence of postmodern themes and forms.

ENGLISH 461. STUDIES IN EARLY ENGLISH DRAMA  Three credits
Study of the drama from the tenth century to 1642; reading of plays by medieval and early modern dramatists exclusive of Shakespeare.

ENGLISH 463. RESTORATION AND 18TH CENTURY DRAMA  Three credits
Study of the drama from 1660-1780.

ENGLISH 465. STUDIES IN MODERN DRAMA  Three credits
Studies in major theatrical genres, themes, and playwrights of modern world drama through the mid-twentieth century.

ENGLISH 466. STUDIES IN AMERICAN OR BRITISH DRAMA  Three credits
A study of major American and/or British playwrights and movements, focus to be determined by instructor.

ENGLISH 468. STUDIES IN CONTEMPORARY DRAMA  Three credits
A study of major playwrights and theatrical movements in contemporary world drama from the mid-twentieth century to today.

ENGLISH 470. STUDIES IN MODERN BRITISH POETRY  Three credits
Study of major British poetry of the twentieth century.
ENGLISH 476. STUDIES IN MODERN AMERICAN POETRY  Three credits
Study of major movements and representative figures in modern American poetry.

ENGLISH 494. LITERARY CRITICISM  Three credits
A study of literary theory and techniques of analysis.

ENGLISH 495-496. INDEPENDENT RESEARCH  Three credits each
Independent study and research for advanced students in the field of the major under the
direction of a staff member. A research paper at a level significantly beyond that of a term
paper is required.
Prerequisite: Approval of Department Chairperson.

ENGLISH 497. SEMINAR  Three credits
Presentations and discussions of selected topics.
Prerequisite: Approval of department chairperson.

ENGLISH 498. TOPICS  Three credits
The study of a special topic in language, literature, or criticism.

HISTORY/SECONDARY EDUCATION  Lawrence T. Kuhar, Ph.D
Chairperson

DEGREE REQUIREMENTS
Candidates for the degree of Master of Science in Education with a concentration in
Secondary Education/History must take 18 hours of history courses numbered 400 or
above.

Requirements for the education component of the Master of Science in Education with a
major in history are listed under Education earlier in this bulletin.

COURSE DESCRIPTIONS

HISTORY 421. AMERICAN CULTURAL AND SOCIAL HISTORY  Three credits
An examination of differences and divisions within American society through such topics
as social movements, demographic trends, gender, ethnicity and class, effect of industrializa-
tion and immigration, cultural expressions, religion, and the family.

HISTORY 424. AMERICAN ECONOMIC HISTORY  Three credits
A survey of the evolution of the American economy from colonial dependency to modern
industrial maturity. Emphasis will be placed upon the development of the United States
as an industrial world power since about 1850.

HISTORY 425. DIVERSITY IN PENNSYLVANIA HISTORY  Three credits
A study of the history of the Commonwealth with particular focus on ethnic and racial diversity.

**HISTORY 428. HISTORY OF THE FOREIGN POLICY OF THE UNITED STATES**  
Three credits  
A selective treatment of major themes in American foreign policy from the founding of the Republic to the present.

**HISTORY 429. AMERICAN WOMEN’S HISTORY**  
Three credits  
A study of the role, status, and culture of women in America beginning with the First Americans and European contact up to the present time.

**HISTORY 431. COLONIAL AMERICA**  
Three credits  
Discovery, exploration and settlement; development of social, political, religious and intellectual institutions; independence and political reorganization.

**HISTORY 432. THE NEW NATION**  
Three credits  
A study of America’s social, cultural, economic and political development in the first generations of nationhood, 1783-1840.

**HISTORY 433. VICTORIAN AMERICA**  
Three credits  
A study of the development of the United States from the end of the Civil War through the end of World War I. Special attention will be paid to urbanization and industrialization and their effects on everyday life.

**HISTORY 434. THE UNITED STATES, 1900-1945**  
Three credits  
The emergence of the United States as a world power and the corresponding development of its political, economic, social, and religious institutions.

**HISTORY 435. THE UNITED STATES SINCE 1945**  
Three credits  
An examination of the political, social, and economic changes in the United States since World War II. Special attention is paid to America’s dominant role in the immediate post-war world and how changing conditions over the past 40 years have altered this role.

**HISTORY 441-442. HISTORY OF GREAT BRITAIN AND THE BRITISH EMPIRE AND COMMONWEALTH**  
Three credits each semester  
A study of British history from the Neolithic period to present times. The first semester will cover social, economic, and political developments to 1783, including expansion overseas. The second semester will cover the consequences of the industrial revolution and the evolution of the empire into the Commonwealth.

**HISTORY 445. HISTORY OF NORTHEASTERN EUROPE**  
Three credits  
A study of the cultural, political, and intellectual history of the Poles, Czechs, Slovaks, Croats, Slovenes and Hungarians, who occupy the northern tier of Eastern Europe.
Special attention is given to the roles of the Habsburg and Russian empires in shaping the historical destinies of these peoples and to the roots and consequences of the forces of nationalism in the region.

HISTORY 446. HISTORY OF THE BALKANS
Three credits
A study of the cultural, political and intellectual history of the Bulgarians, Serbs, Croats, Slovenes, Albanians, Greeks, Romanians and Turks, who occupy the southern, or Balkan, tier of Eastern Europe. Special attention is given to the roles of the Ottoman Turkish, Habsburg and Russian empires in shaping the historical destinies of these peoples, and to the roots and consequences in the region of such forces as Christian-Muslim cultural interrelationships and nationalism.

HISTORY 448. HISTORY OF RUSSIA
Three credits
A study of the political, social, and intellectual history of Russia. Emphasis is placed upon the emergence of Russia as a major power after 1700.

HISTORY 452. THE RENAISSANCE AND REFORMATION
Three credits
Within the political and economic framework of the period, study will be made of the culture of the Renaissance, the religious reform and conflicts resulting from the crisis in the sixteenth century.

HISTORY 453. AGE OF ABSolutism
Three credits
The political, social, economic, intellectual, and cultural development of Europe and dependencies from 1600 to ca. 1750.

HISTORY 454. THE ERA OF THE FRENCH REVOLUTION AND NAPOLEON
Three credits
A study of the structure of the Ancient Regime and an examination of the causes, events, and consequences of the French Revolution culminating in the Napoleonic Empire.

HISTORY 455. EUROPE IN THE NINETEENTH CENTURY
Three credits
A study of the political, social, and cultural development of Europe from the Congress of Vienna to World War I.

HISTORY 456. EUROPE, 1900 - 1960
Three credits
Against a background of the internal and international developments of the leading powers, the class will study the origins and results of the two World Wars.

HISTORY 457. THE WORLD SINCE 1945
Three credits
This course examines many important events and developments in the modern world since 1945. It considers incidents of largely historical significance, such as the Cold War between the United States and the Soviet Union, and those of continuing relevance, like the globalization and privatization of the economy.
HISTORY 467. HISTORY OF MODERN INDIA  Three credits
A study of the political, social, and economic development of the Indian sub-continent since 1500.

HISTORY 476. WORLD WAR II  Three credits
Consideration of the causes of the war, military strategy and tactics, diplomatic interests of the participants, and resulting Cold War problems.

HISTORY 495-496. INDEPENDENT RESEARCH  One to three credits
Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

HISTORY 497. SEMINAR  One to three credits
Presentations and discussions of selected topics. (May be repeated for credit)
Prerequisite: Approval of the instructor is required.

HISTORY 498. TOPICS  Three credits
Special topics in history. This course will be offered from time to time when interest and demand justify it.

MATHEMATICS/SECONDARY EDUCATION

V. Ming Lew, Ph.D, Chairperson

For information, see Mathematics section later in this bulletin.
ELECTRICAL ENGINEERING

ENGINEERING AND PHYSICS

Thyagarajan Srinivasan, Ph.D., Acting Division Director

MASTER OF SCIENCE IN ELECTRICAL ENGINEERING (M.S.E.E.)

Thyagarajan Srinivasan, Ph.D., Program Director

Courses are available days and evenings.

ADMISSION

In addition to the general admission requirements above, applicants should possess a B.S. degree in Electrical Engineering from an accredited institution. Applicants not meeting the requirements may be provisionally admitted and will be required to take sufficient undergraduate courses to make up deficiencies.

DEGREE REQUIREMENTS

Thirty (30) credit hours are required for the M.S.E.E. degree. These include the following:

- 12 credits EE 410, EE 460, EE 481, and EE 482
- 18 credits Students should choose either the thesis or the non-thesis option. In either case at least two courses (for 6 credits) must be chosen from the following: EE 414, EE 442, EE 445, EE 465, and EE 471. Other courses may be chosen from graduate level courses in EE/CS and an approved course from the Business Administration program.

Non-thesis option: 3 credits of EE 590 are required. Students should submit a well-documented report to the department.

Thesis option: Six credits of thesis (EE 590) are required. The thesis shall be defended in an open forum. Three faculty members constitute a Thesis Committee with the Thesis Advisor as Chair.

Students who opt to complete a thesis may select from posted research topics or proposed areas of interest of the faculty and submit a proposal of their thesis to the Department. Final decision of topic and advisor will be taken by the Department in accordance with Department guidelines. Ordinarily, these topics will touch on one or more of the following areas: Communication, Navigational Systems; Computers, Digital Systems; Microelectronics; Microwaves and Antennas; Power, Control Systems; Software Engineering. Some of the highly specialized and state-of-the-art laboratories available for students include Communications, Thick-Film Processing, Microelectronics, Microwaves, Antennas, Machines and Controls, Digital Design.

Both full- and part-time students are limited to a maximum of three thesis credits in any single semester. The minimum acceptable grade point average is 3.0. (See Grade Regulations.)

Advanced standing or transfer credit is limited to six (6) graduate credits. Petitions should
be submitted to the Engineering and Physics Division and should document minimum competency defined as relevant graduate course work at an accredited institution with an earned minimum grade of 3.0 (0-to-4 scale) or equivalent expertise.

FINANCIAL AID
A limited number of assistantships are available for full-time students. Applicants should possess superior academic qualifications and provide good scores in the GRE (General and Engineering).

COURSE DESCRIPTIONS
Students will be advised of the course offerings, sequencing, and prerequisites upon admission. The faculty advisor will be in a position to recommend courses to the student taking into account the time-table and the necessary prerequisites.

The 500-level courses are restricted to students who have achieved candidate status or by written permission of the instructor. All 400-level courses require a background based on 300-level courses or the equivalent of the B.S. degree.

COURSE DESCRIPTIONS

EE 410. LINEAR SYSTEM THEORY
Three credits
Linear spaces and linear operators; input-output systems and state variables; linear dynamical equations and impulse response matrices; controllability, observability and their applications to minimal realizations; state feedback controllers and observers; multivariable systems.

EE 414. FEEDBACK CONTROL SYSTEMS
Three credits
A review of mathematical models for physical systems. Block diagram simplifications; sensitivity measure and performance of control systems; state space representations; stability analysis; the Routh Hurwitz criterion; the root locus method; Bode plots; and the Nyquist criteria; lead and lag compensator design; design with state space representations. Two 1-hour lectures and one 2-hour lab per week.
Prerequisite: EGR 214

EE 415. DIGITAL CONTROL SYSTEMS DESIGN
Three credits
Review of design and compensation of control systems. State space analysis of continuous-time and discrete-time systems; discrete-time observations, control and feedback; digital regulators design; digital tracking systems design; controlling continuous-time systems.
Prerequisite: EE 414

EE 416. ROBOT VISION
Three credits
Image formation and image sensing; binary images; geometrical and topological properties; reflectance map; photometric stereo, shape, and shading; motion field and optical flow; extended Gaussian images; picking parts out of bin.
Prerequisite: First course in Robotics
EE 418. CONTROLS AND KINEMATICS IN NAVIGATION
Three credits
Prerequisites: EE 318, EE 460

EE 421. POWER SYSTEM ANALYSIS
Three credits
Review of power generation schemes. Transmission line calculations and power system representation; network solution by matrix transformations; symmetrical components; symmetrical and unsymmetrical fault analysis of power systems; load flow analysis.
Prerequisite: EE 321

EE 425. POWER ELECTRONICS
Three credits
SCR characteristics; turn-on and turn-off mechanisms; SCR connections; power and switching devices, including UJT, triac and special devices; AC power control: full-wave control, half-wave control, and phase control; line-commutated converters and inverters; chopper circuits; applications.
Prerequisite: EE 252, EE 321

EE 432. ELECTROMAGNETIC FIELDS AND WAVES
Three credits
Maxwell's equations; energy and momentum in the electromagnetic field; plane, cylindrical, and spherical waves; boundary conditions; cylindrical waveguides; cavity resonators; scattering by a sphere and other geometries.
Prerequisite: EE 337

EE 435. MICROSTRIP CIRCUIT DESIGN
Three credits
A review of TEM mode transmission line theory. Static TEM parameters and design; discontinuities in microstrip and coupled microstrip lines; design examples of passive microstrip elements; narrowband and wideband microwave amplifiers.
Prerequisite: EE 355/EE337

EE 436. ANTENNA THEORY AND DESIGN
Three credits
Electromagnetic vector potentials; Green's functions; radiating systems; image theory; reciprocity; directional arrays; linear and broadband antennas; moment method; aperture antennas; microstrip antennas, and antenna synthesis.
Prerequisite: EE 337

EE 441. DIGITAL SYSTEMS DESIGN
Three credits
Advanced topics in digital design; combinational and sequential circuit modeling, fault modeling, digital design testing and testability, design to test principles, and basic concepts in fault tolerant design.
Prerequisite: EE 241
EE 442. MICROCOMPUTER OPERATION AND DESIGN
Three credits
Microprocessor architecture, microcomputer design, and peripheral interfacing. Micropro-
gramming, software systems, and representative applications. Associated laboratory experi-
ments consider topics such as bus structure, programming, data conversion, interfacing, data
acquisition, and computer control. Two hour lecture and one two-hour laboratory a week.
Fee: $65. (same as CS 429)
Prerequisite: EE 345

EE 444. OPERATING SYSTEM PRINCIPLES
Three credits
Analysis of the computer operating systems including Batch, Timesharing, and Realtime
systems. Topics include sequential and concurrent processes, processor and storage manage-
ment, resource protection, processor multiplexing, and handling of interrupts from periph-
eral devices. (same as CS 426)
Prerequisite: CS 227

EE 445. COMPUTER ORGANIZATION
Three credits
Number representation, digital storage devices and computational units, bus structures; ex-
ecution sequences and assembly language concepts; control units with horizontal and ver-
tical microcoding; addressing principles and sequencing; microprocessors; basic input and
output devices; interrupts; survey of RISC principles including pipelined execution. (same
as CS 445)
Prerequisite: EE 241

EE 446. COMPUTER ARCHITECTURE
Three credits
A study of the design, organization, and architecture of computers, ranging from the mi-
croprocessors to the latest "supercomputers." (same as CS 430)
Prerequisite: EE 242 or EE 342

EE 451. OPTO-ELECTRONICS
Three credits
Electromagnetic theory; propagation of rays; propagation of optical beams in homogeneous
and guiding media; optical resonators; interaction of radiation and atomic systems; theory
of laser oscillators; some specific laser systems; second-harmonic generation and parametric
oscillation; electroptic modulation of lasers; optical radiation interaction of light and sound;
propagation, modulation, and oscillation in optical dielectric waveguides; laser applications;
fiber optics and couplers.
Prerequisite: EE 337

EE 460. STOCHASTIC PROCESSES IN ENGINEERING
Three credits
Review of probability. Random variables and random processes; functions of one and two
random variables; expectations; moments and characteristic functions; correlation and pow-
er spectra; stationary and nonstationary processes, harmonic analysis of random processes.

EE 461. DIGITAL COMMUNICATIONS
Three credits
Sampling theory; analog pulse modulation; time-division multiplexing; baseband digital
transmission; bandlimited digital PAM systems; synchronization techniques; PCM, PCM with noise, DPCM and DM; digital multiplexing; error correction and detection; linear block codes; convolutional codes; bandpass digital transmission; coherent and noncoherent binary systems; quadrature carrier and M-ary systems; information theory.
Prerequisites: EE 361, EE 460

EE 465. DIGITAL SIGNAL PROCESSING Three credits
Z transforms; Fourier transforms; discrete Fourier transforms; sampling theorem; analog filter approximations; digital filter realizations and topological properties; analysis and design of recursive (IIR) filters and non-recursive (FIR) filters; fast Fourier transforms.
Prerequisite: EE 252

EE 471. ADVANCED SOLID STATE DEVICES Three credits
Review of semiconductor fundamentals. Physics, fabrication technologies, and operational characteristics of a variety of solid-state structures including p-n junctions, bipolar transistors, thyristors, metal semiconductor contacts, JFET and MESFET, MIS and CCD, MOS-FET, microwave and photonic devices including IMPATT, BARITT, TED, LED, semiconductor lasers, photodetectors, and solar cells.
Prerequisite: EE 271

EE 474. INTEGRATED CIRCUIT DESIGN Three credits
Model calculations, transfer characteristics and use of SPICE for MOS devices and circuits; basic logical units; integrated systems fabrication including scaling, channel properties, yield statistics, design rules and choice of technology; data and control flow including clocks, registers and PLA'S; design implementation from circuit topology to patterning geometry and wafer fabrication; CAD; overview of LSI and VLSI systems; architecture and design of system controllers; system timing (SPICE); physical aspects of computational systems; ASICs memories and other logical circuits.
Prerequisites: EE 241, EE 271

EE 481. ADVANCED MICROELECTRONICS LAB Three credits
Theoretical and practical aspects of techniques utilized in the fabrication of semiconductor devices. Techniques of wet chemistry; deposition and diffusion; advanced concepts of contamination control; defect-free processing and gettering; complete characterization including junction penetration, resistivity, and oxide thickness. Switching speed, junction characteristics, leakage and gain, ion implantation, and method of fabrication. Extensive use of process simulation programs such as SUPREM. Fee: $65.
Prerequisite: EE 271

EE 482. ADVANCED COMMUNICATION AND ANTENNA LAB Three credits
Characterization and measurement of microwave devices and systems; emphasis on antenna design and testing; utilization of the network analyzer and spectrum analyzer; antenna pattern measurements; communication link design; computer-aided design of active and passive microwave circuits; touchstone, optical signal generation and modulation. Fee: $65.
Prerequisite: EE 335
EE 498. TOPICS IN ELECTRICAL ENGINEERING  Three credits
Selected topics in electrical engineering. These may include one or more of the following: control systems, information theory, signals and noise measurements, communication systems, navigational systems, network design and synthesis, solid state, quantum electronics, magnetic and non-linear circuits, digital and analog systems, computer systems, medical engineering, power systems and generation. May be repeated for credit.

EE 510. OPTIMAL FILTERING THEORY  Three credits
Review of stochastic processes; stochastic integrals and differential equations; Wiener filtering; discrete Kalman filter; applications and additional topics on discrete Kalman filtering; continuous Kalman filter; discrete smoothing and prediction; additional topics on Kalman filtering.
Prerequisites: EE 410, EE 460

EE 514. OPTIMAL CONTROL THEORY  Three credits
The calculus of variations and the minimum principle; optimal control of discrete-time systems; optimal control of continuous-time systems; dynamic programming; models of dynamic systems; optimal estimation; stochastic neighboring optimal control.
Prerequisite: EE 410

EE 516. ROBOTICS AND ARTIFICIAL INTELLIGENCE  Three credits
Prospects for knowledge-based robots; robots and artificial intelligence; expert systems and knowledge-based languages; production-rule expert systems; search techniques; heuristic graph searching; AND/OR graphs; first order predicate logic; future prospects for knowledge-based robots.
Prerequisite: First course in Robotics

EE 521. COMPUTER AIDED ANALYSIS OF POWER SYSTEMS  Three credits
Bus impedance and bus admittance matrices; sparsity programming and triangular factorization. Load-flow studies; Gauss, Gauss-Seidel, Newton-Raphson methods. Approximate, fast and special-purpose load-flow studies. Optimal dispatch: equal incremental cost rule; gradient dispatch; optimal reactive power dispatch methods.
Prerequisite: EE 421

EE 535. MICROWAVE CIRCUITS  Three credits
Microwave networks; S-parameters and stability considerations; characterization of transmission line structures and discontinuities; models of microwave solid state devices; measurement techniques for modeling; design synthesis; optimization and analysis of microwave integrated circuits; numerical methods.
Prerequisite: EE 435

EE 541. MICROPROCESSOR-BASED SYSTEMS DESIGN  Three credits
Brief review of directions in microprocessor development: single chip microcomputers, Reduced Instruction Set Computers (RISCs), and Multiple Data Stream processors; hardware and software aspects of the design of microprocessor-based systems; architecture and
design of multiple computer and parallel processing systems; cache memory techniques and issues; bus standards and interfacing.
Prerequisite: EE 342

**EE 560. DETECTION AND ESTIMATION THEORY**  
Three credits
Prerequisite: EE 460

**EE 561. COMPUTER COMMUNICATION NETWORKS**  
Three credits
Data/computer communication network structures; the structure and function of network protocols; data link control procedures; multiple-access protocols; wideband data transmission media; functions and characteristics of devices used in computer communications; analysis of data/computer networks.
Prerequisite: EE 461

**EE 562. OPTICAL COMMUNICATION**  
Three credits
Structure and waveguiding fundamentals of optical fibers; signal degradation in optical fibers; optical sources and their characteristics; power launching and coupling; photodetectors; optical receiver operation; coherent and non-coherent detection; analysis and design of optical transmission links.
Prerequisites: EE 432, EE 461

**EE 565. DIGITAL IMAGE PROCESSING**  
Three credits
Scenes, images and digital pictures; linear operations on pictures; discrete picture transforms; random variables and random fields; visual perception. Sampling using array of points and orthonormal functions; quantization; Karhunen-Loeve, Fourier, Hadamard, and cosine compression; predictive block truncation, error-free compression; rate-distortion function. Enhancement: gray scale modification, sharpening and smoothing; restoration: inverse least-squares and recursive filtering, constrained deconvolution.
Prerequisite: EE 460

**EE 568. MODERN NAVIGATION SYSTEMS**  
Three credits
Overview of electronic navigation systems: Global Positioning Systems (GPS); application and status; concept and operation; accuracy and propagation consideration; GPS receiver; signal structure, integration principles for navigation systems; Kalman filtering; differential GPS.
Prerequisites: EE 418, EE 460

**EE 571. MODERN SOLID STATE DEVICES AND DESIGN**  
Three credits
Semiconductor fundamentals at an advanced level. Silicon and GaAs, MOS devices; processing details; performance limitations; process design for given device specifications; limitations due to fabrication techniques; quantum phenomena in a variety of modern high performance devices; microwave semiconductor devices; integrated circuit design; VLSI
design; computer aids for process and circuit design.
Prerequisite: EE 471

EE 590. PROJECT/Thesis
One to six credits
Students have the option to select a 6-credit or a 3-credit project to meet the degree requirement. Topics will touch on one or more of the following areas: Communications, Navigational Systems; Computers, Digital Systems; Microelectronics; Microwaves and Antennas; Power, Control Systems; and Software Engineering. Three faculty members constitute a Faculty Committee with the Project/Thesis Advisor as Chair. The project/thesis shall be presented in an open forum.

EE 598. Advanced Topics in Electrical Engineering
Three credits
Advanced topics in electrical engineering. These may include one or more of the following: control systems; navigational systems; information theory; signals and noise measurements; communication systems; network design and synthesis; solid state; quantum electronics; magnetic and non-linear circuits; digital and analog systems; computer systems; medical engineering; power systems and generation. May be repeated for credit.

MASTER OF SCIENCE IN ENGINEERING Operations and Strategy
Hisham Abu-Nabaa, M.S. Program Director
Maria Roman, Recruitment/Retention Specialist

The Master of Science in Engineering Operations and Strategy (EOS) is a 36 credit-hour program that integrates 12 credit hours of required MBA program content with 24 hours of graduate engineering and elective content. The EOS program is committed to the successful development of the upward-bound technical talent in industry. Entering students enjoy a curricular breadth and flexibility unique to Wilkes University because of leadership development strengths in the Sidhu School of Business.

Program emphases include decision processes, systems modeling, uncertainty analysis and risk assessment. Graduates will learn to effectively address and communicate the growing complexities of organizational performance and decision processes as they prepare for leadership roles in production flow, logistics, demand forecasting, project planning, and quality improvement.

ADMISSION REQUIREMENTS
An ABET-accredited baccalaureate Engineering degree is preferred but not required. Applicants with other four-year degree preparations (e.g. BS or BA) may meet entrance requirements once the necessary foundation content is satisfied. Entry standards include the following:
   a) Experience
      Post-baccalaureate industrial/professional work experience preferred.
   b) Application:
Submitted to the Graduate Admissions Office with payment of appropriate application fee.

c) Academic Preparation:

- Demonstrate satisfactory performance as an undergraduate as evidence with a complete set of official undergraduate transcripts to be submitted to the Graduate Admissions Office.

- To be accepted on a regular basis, candidates for the EOS degree must have obtained a cumulative GPA of at least 3.0. Prospective students with a GPA of less than 3.0 may be conditionally accepted into the EOS program. To be reclassified to regular status, the conditionally accepted student must attain no less than a 3.0 for each of the first six credit hours of graduate coursework taken. Failure to maintain the minimum 3.0 in any course will result in dismissal of the conditionally accepted student.

- Applicants not holding an ABET-accredited undergraduate or graduate engineering degree must demonstrate or accrue the following preparation prior to enrolling in EOS courses:
  - Mathematics: 12 hours (calculus, differential equations and statistics, or approved equivalent)
  - Engineering economy or equivalent; 3 hours
  - Science (chemistry and/or physics): 12 hours of approved coursework
  - Engineering: 12 hours of approved coursework
  - Demonstrated ability with computer programming and/or numerical analysis techniques

- Applicants holding neither an accredited engineering (ABET) nor business (ACBSP, AACSB) degree must demonstrate sufficient professional competency as stipulated in the MBA admission requirements.

d) Professional Recommendations

Applicants must submit two letters of professional recommendation.

DEGREE REQUIREMENTS

The Masters of Science Degree in Engineering Operations and Strategy requires a minimum of thirty-six (36) credit hours consisting of twenty-seven (27) credits in CORE courses and nine (9) elective credit hours.

Required Courses (CORE):
EOS 510, EOS 515, EOS 520, EOS 525, EOS 530, MBA 500, MBA 513, MBA 532, & MBA 540.

Elective Options: EOS students have three options for distributing the remaining 9 hours of graduate elective credit:

2) Industry project option: 3 hrs project (EOS 580 & 581) plus 6 hrs approved elective coursework (EOS/EE/CSE/MBA).

3) 9 hours coursework distributed as follows: EOS/EE - 3 hrs; EOS/EE/CSE/MBA - 6 hrs.

**COURSE DESCRIPTIONS**

**EOS 510. ENGINEERING PROJECT DECISION PROCESSES**  Three credits
Projects are assessed with respect to uncertainty (revenues, expenses, product/process performance) and risk. Cash flows are evaluated to estimate present values and quantify risks associated with various decision alternatives. Topics include depreciation strategies, make/purchase/rent choices, break-even and benefit/cost assessments, and decision analysis with imperfect information. Required of all EOS students. Three hours lecture per week.

**EOS 515. QUALITY PROCESSES FOR DESIGN AND PRODUCTION**  Three credits
Applicable quality techniques are presented within the context of research, new product development, plant operations, product support, and risk reduction. Students will learn how to articulate objectives, identify desired outcomes and establish suitable metrics for performance management. Required of all EOS students. Three hours lecture per week.

**EOS 520. OPERATIONS ANALYSIS AND RESOURCE ALLOCATION**  Three credits
Students will assess production flows and space/equipment/resource utilization for purposes of reducing production bottlenecks while maintaining/increasing facility utilization. Various quantitative analysis and optimization methodologies will be covered for solving linear and nonlinear optimization problems. Simulation and graphical approaches will be utilized to assess solution performance. Required of all EOS students. Three hours lecture per week.

**EOS 525. PROJECT ANALYSIS AND RESOURCE ALLOCATION**  Three credits
A study of critical issues in the management of engineering projects including proposal development, mobilization, scope change, completion and termination. Performance metrics are considered in planning and tracking project cost, schedule, and resource requirements with CPM/PERT algorithms. Case discussions and a term project are included in the course. Required of all EOS students. Three hours lecture per week.

**EOS 530. STOCHASTIC MODELS IN ENGINEERING MANAGEMENT**  Three credits
A review of engineering analytical methods and their application in strategic decision environments. Required case studies will require techniques such as Monte Carlo simulation, risk assessment, and failure modeling as the suitability and application of several engineering analytical approaches to operational analysis of business/industry decision processes. Required of all EOS students. Three hours lecture per week.
EOS 580. GRADUATE PROJECT CONTINUUM  
**One - Three credits**  
EOS students may elect a three-credit-hour industry-based project option. The student, working with industry, will select a project topic derived from an existing need/interest in industry under the guidance of a faculty project advisor selected by mutual agreement of the student and faculty member. When the project is completed and approved by the Project Advisor, bound copies of the approved report will be filed in the department office and in Farley Library for record. A grade will be awarded each semester the student is enrolled in EOS 580. At project completion, a completion grade will be awarded by converting one credit-hour of EOS 580 to one credit-hour of EOS 581 (Graduate Project Completion). EOS 580 credit does not apply toward meeting degree requirements until a grade for EOS 581 is recorded. Only two hours of credit for EOS 580 may apply toward EOS degree requirements (although the student may enroll in a total of more than two credit hours of continuum if project completion extends to additional semesters).

EOS 581. GRADUATE PROJECT COMPLETION  
**One credit**  
Recorded with grade by converting one credit-hour of EOS 580. Occurs upon completion of the graduate project, receipt of Project Advisor approval, and submittal of approved copies to the department office and Farley Library for binding and record.

EOS 590. THESIS CONTINUUM  
**One - Six credits**  
EOS students may elect the six-credit-hour thesis option under the guidance of a Thesis Advisor who chairs the Thesis Committee. The Committee is comprised of three members; at least two members (including the Advisor) must be Wilkes faculty members. When the thesis is complete and has been defended with Committee approval in an open forum, bound copies of the approved thesis will be filed in the department office and in Farley Library for record. A continuum grade will be awarded each semester the student is enrolled in Continuum. A completion grade will be awarded by converting one credit-hour of EOS 590 Graduate Thesis Continuum to one credit-hour of EOS 591 Graduate Thesis Completion. EOS 590 credit does not apply toward meeting degree completion until a grade for EOS 591 is recorded. Only five hours of credit for EOS 590 may apply toward EOS degree requirements (although the student may enroll in a total of more than five hours of continuum if thesis completion extends to additional semesters).

EOS 591. GRADUATE PROJECT COMPLETION  
**One credit**  
Recorded with grade by converting one credit-hour of EOS 590. Occurs after successful defense of the Graduate Thesis before a Thesis Committee in an open forum, and after approved copies have been submitted to the department office and Farley Library for binding and record.
The courses of study are intended for:

1. Those with an undergraduate degree in a traditional mathematics major who wish to make the transition to applied mathematics/computer science. For the degree in mathematics, a student who has met admission requirements can take up to half of the required 30 credits in computer science.
2. Current or prospective teachers of mathematics who wish to enhance their training in either educational methodology or in mathematics/computer science itself.
3. Those who plan to continue their studies beyond the master’s level in either mathematics or computer science.

ADMISSION

1. Master of Science in Mathematics
   Applicants are expected to have had undergraduate courses in each of the following three areas: linear algebra/matrix theory, advanced calculus or real variables, and abstract algebra. Students deficient in one or more of these areas may still be admitted into the program, but are required to make up all deficiencies early in their graduate studies.
2. Master of Science in Education
   Admission requirements for the Department of Education are described under the header “Secondary Education” earlier in this bulletin.

DEGREE REQUIREMENTS

1. Master of Science in Mathematics
   Candidates for the degree of Master of Science in Mathematics must complete thirty credits in approved courses offered by the Department of Mathematics and Computer Science numbered 400 or above. Of these thirty credits, at least six credits shall be 500-level courses.

   There is a thesis option available whereby a student can work toward the completion of a written thesis under the direction of their faculty advisor. At most, six of the required thirty credits may be earned through thesis work. Students electing a thesis option should consult the Office of Graduate Studies and Continued Learning for details regarding thesis-preparation guidelines.

2. Master of Science in Education
   Candidates for the degree of Master of Science in Education with a concentration in Secondary Education/Mathematics must complete thirty credits of approved courses offered by either the Department of Mathematics/Computer Science or the Department of Education. Of these thirty credits, eighteen (18) credits shall be in
approved courses offered by the Department of Mathematics and Computer Science. Requirements for the Education component of the Master of Science degree in Education with a concentration in Secondary Education/Mathematics are listed under the Education section earlier in this bulletin.

SPECIAL FEATURES OF THE PROGRAM
The department makes every effort to make the programs available to part-time as well as full-time students.

COURSE DESCRIPTIONS

THE FOLLOWING COMPUTER SCIENCE COURSES MAY BE TAKEN AS PART OF THE MASTER’S DEGREE IN MATHEMATICS OR MATHEMATICS EDUCATION.

COMPUTER SCIENCE

CS 419. PRINCIPLES OF PROGRAMMING LANGUAGES Three credits
A study of the principles that govern the design and implementation of programming languages. Topics include language structure, data types, and control structures. Programming projects will familiarize students with the features of programming languages through their implementation in interpreters. Offered in the spring semester of even years when demand warrants.
Prerequisite: CS 227 (Computer Data Structures).

CS 421. SIMULATION AND DATA ANALYSIS Three credits
Methods of handling large data bases including statistical analysis and computer simulations. The emphasis will be upon discrete simulation models with a discussion of relevant computer languages, SLAM, GPSS, and/or SIMSCRIPT. Offered in the fall semester of odd years when demand warrants.
Prerequisites: CS 125 (or the equivalent programming experience) and one semester of calculus.

CS 423. THEORY OF COMPUTATION Three credits
This course formalizes many topics encountered in previous computing courses. Topics include: languages, grammars, finite automata, regular expressions and grammars, context-free languages, push-down automata, Turing machines and computability. Offered in the spring semester of odd years when demand warrants.
Prerequisites: MTH 231 (Discrete Mathematics) and CS 126 (or the equivalent programming experience).

CS 424. SYSTEMS ANALYSIS Three credits
A study of the design and implementation of large computer projects. Special emphasis is placed on applications to business systems. Students will use a CASE tool for automated systems analysis and design. Offered every fall.
Prerequisite: File management experience in COBOL.
CS 425. DATABASE MANAGEMENT  Three credits
Practical experience in solving a large-scale computer problem including determination of data requirements, appropriate data organization, data manipulation procedures, implementation, testing and documentation. Offered in the fall semester of odd years.
Prerequisite: CS 126 or permission of the instructor.

CS 426. OPERATING SYSTEM PRINCIPLES  Three credits
Analysis of the computer operating systems including Batch, Timesharing, and Realtime systems. Topics include sequential and concurrent processes, processor and storage management, resource protection, processor multiplexing, and handling of interrupts from peripheral devices. (Cross-listed with EE 444) Offered in the fall semester of odd years.
Prerequisite: CS 227 (Computer Data Structures).

CS 427. COMPILER DESIGN  Three credits
A study of compiler design including language definition, syntactic analysis, lexical analysis, storage allocation, error detection and recovery, code generation and optimization problems. Offered in the spring semester of odd years when demand warrants.
Prerequisite: CS 227 (Computer Data Structures).

CS 428. ALGORITHMS  Three credits
Theoretical analysis of various algorithms. Topics are chosen from sorting, searching, selection, matrix multiplication and multiplication of real numbers, and various combinational algorithms. Offered in the fall semester of even years.
Prerequisite: CS 227 (Computer Data Structures) and MTH 202 (Set Theory and Logic).

CS 430. COMPUTER ARCHITECTURE  Three credits
A study of the design, organization, and structure of computers, ranging from the microprocessors to the latest “supercomputers.” Offered in the spring semester of odd years.
Prerequisite: CS 230 (Machine Language).

CS 434. SOFTWARE ENGINEERING  Three credits
A course in “programming in the large.” Topics include software design, implementation, validation, maintenance and documentation. There will be one or more team projects.
Offered every spring.
Prerequisite CS 324 (Systems Analysis) and CS 128 (Unix).

CS 435. ADVANCED DATABASE CONCEPTS  Three credits
A continuation of CS 325. Concentration on the design of a large scale database system, current special hardware and software, and the role of a DBMS in an organization. Offered in the spring semester of even years when demand warrants.
Prerequisite: CS 325 (Database Management).

CS 440. ARTIFICIAL INTELLIGENCE  Three credits
This course will provide an overview of artificial intelligence (AI) application areas and
hands-on experience with some common AI computational tools. Topics include search, natural language processing, theorem proving, planning, machine learning, robotics, vision, knowledge-based systems (expert systems), and neural networks. Offered in the fall semester of odd years when demand warrants.

Prerequisite: CS 128 (Unix) and programming experience in a high-level language.

**CS 450. OBJECT-ORIENTED PROGRAMMING**  
Three credits
Object-oriented concepts and their application to human-computer interaction. Concepts to be covered include objects, classes, inheritance, polymorphism, design patterns, GUI interface guidelines and design of interfaces. There will be programming projects in object-oriented languages. Offered in the spring semester of odd years when demand warrants.

Prerequisite: CS 227 (Computer Data Structures).

**CS 455. COMPUTER NETWORKS**  
Three credits
This course introduces basic concepts, architecture, and widely used protocols of computer networks. Topics include the Open System Interconnection (OSI) model consisting of physical link layer, data layer, network layer, transport layer, session layer, presentation layer, and application layer, medium access sublayer and LAN; various routing protocols; Transmission Control Protocol (TCP) and Internet Protocol (IP) for internetworking. Offered in the spring semester of even years when demand warrants.

Prerequisite: CS 227 (Computer Data Structures).

**CS 460. LINEAR PROGRAMMING**  
Three credits
Graphical linear programming, simplex algorithm and sensitivity analysis. Special L.P. models such as the transportation problem, transshipment problem, and assignment problem. May include integer programming, branch and bound algorithm, geometric programming, goal programming. (Cross-listed with MTH 460) Offered in the spring semester of even years.

Prerequisite: Programming experience in a high-level language and completion of the first-year calculus sequence.

**CS 463. OPERATIONS RESEARCH**  
Three credits
A survey of operations research topics such as decision analysis, inventory models, queuing models, dynamic programming, network models, heuristic models, and non-linear programming. (Cross-listed with MTH 463) Offered in the spring semester of odd years.

Prerequisite: Programming experience in a high-level language and completion of one semester of calculus.

**CS 464. NUMERICAL ANALYSIS**  
Three credits
An introduction to numerical algorithms as tools to providing solutions to common problems formulated in mathematics, science, and engineering. Focus is given to developing the basic understanding of the construction of numerical algorithms, their applicability, and their limitations. (Cross-listed with MTH 464) Offered when demand warrants.

Prerequisites: MTH 211 (Differential Equations) and programming experience in a high-level language.
CS 467. COMPUTER GRAPHICS  Three credits
Introduction to equipment and techniques used to generate graphical representations by computer. Discussion of the mathematical techniques necessary to draw objects in two and three-dimensional space. Emphasis on application programming and the use of a high-resolution color raster display. Offered in the fall semester of even years when demand warrants.
Prerequisite: CS 227 (Computer Data Structures).

CS 483. WEB DEVELOPMENT  Three credits
An introduction to the development of dynamic, database-driven sites, including active server pages, PHP, authentication, session tracking and security, and the development of shopping cart and portal systems. Offered every spring.
Prerequisites: CS 283 (Web Development I) and CS 325 (Database Management).

CS 495-496. INDEPENDENT STUDY IN COMPUTER SCIENCE  Three credits
Individual study in a chosen area of computer science under the supervision of a faculty member. May be repeated for credit.
Prerequisite: Approval of Department Chair.

CS 498. TOPICS IN COMPUTER SCIENCE  Variable credit
Study of one or more special topics in computer science. May be repeated for credit provided a different topic is selected.

MATHEMATICS

MTH 411. REAL ANALYSIS  Four credits
A rigorous study of the topology of the real line, limits, continuity, differentiation, integration, and series of functions. Offered in the fall semester of even years.

MTH 413. FUNCTIONS OF SEVERAL VARIABLES  Three credits
A modern treatment of calculus of functions of several real variables. Topics include: Euclidean spaces, differentiation, integration and manifolds leading to the classical theorems of Green and Stokes. Offered when demand warrants.
Prerequisites: MTH 214 (Linear Algebra) and MTH 311 (Real Analysis).

MTH 414. COMPLEX ANALYSIS  Three credits
Complex functions, limit, continuity, analytic functions, power series, contour integration, Laurent expansion, singularities and residues. Offered when demand warrants.

MTH 431. ABSTRACT ALGEBRA I  Four credits
A rigorous study of elementary number theory, groups, rings, and fields. Offered in the fall semester of odd years.

MTH 432. ABSTRACT ALGEBRA II  Three credits
A continuation of Mathematics 331 (Abstract Algebra I). Includes the study of polynomial
rings, ideals, field extensions and Galois Theory. Offered when demand warrants. Prerequisite: MTH 331 or MTH 431 (Abstract Algebra).

**MTH 442. TOPOLOGY**  
Three credits  
An introduction to point-set topology, including a study of metric spaces, topological spaces, countability and separation axioms, compactness, connectedness, product spaces. Offered when demand warrants. Prerequisite: MTH 411 (Real Analysis) or consent of instructor.

**MTH 443. GEOMETRY**  
Three credits  
A study of selected topics from Euclidean and non-Euclidean geometry. Offered in the fall semester of even years.

**MTH 451. PROBABILITY AND MATHEMATICAL STATISTICS I**  
Three credits  
Random variables, probability distributions, expectation and limit theorems, confidence intervals. Offered every fall.

**MTH 452. PROBABILITY AND MATHEMATICAL STATISTICS II**  
Three credits  
Hypothesis testing, non-parametric methods, multivariate distributions, introduction to linear models. Offered in the spring semester of odd years when demand warrants. Prerequisite: MTH 451 or consent of instructor.

**MTH 454. STATISTICAL METHODOLOGY**  
Three credits  
This course emphasizes applications, using statistical computer packages (SPSS, JMP or BMDP) and real data sets from a variety of fields. Topics include estimation and testing; stepwise regression; analysis of variance and covariance; design of experiments; contingency tables; and multivariate techniques, including logistic regression. Offered in the spring semester of even years when demand warrants. Prerequisite: MTH 351 or MTH 451 or consent of instructor.

**MTH 460. LINEAR PROGRAMMING**  
Three credits  
Graphical linear programming, simplex algorithm and sensitivity analysis. Special L.P. models such as the transportation problem, transhipment problem, and assignment problem. May include integer programming, branch and bound algorithm, geometric programming, goal programming. (Cross-listed with CS 460) Offered in the spring semester of even years. Prerequisite: Programming experience in a high-level language and completion of the first-year calculus sequence.

**MTH 461. APPLIED MATHEMATICS I**  
Three credits  
Intended for physical science and engineering students. Topics include inner product spaces, operator algebra, eigenvalue problems, Sturm-Liouville theory, Fourier series and partial differential equations. Offered in the fall semester of odd years when demand warrants.
MTH 462. APPLIED MATHEMATICS II  
Intended for physical science and engineering students. Topics include systems of linear differential equations; nonlinear differential equations; qualitative, numerical, and finite difference methods; theorems of Green and Stokes and the Divergence Theorem. Offered in the spring semester of even years when demand warrants.

MTH 463. OPERATIONS RESEARCH  
A survey of operations research topics such as decision analysis, inventory models, queueing models, dynamic programming, network models, heuristic models, and non-linear programming. (Cross-listed with CS 463) Offered in the spring semester of odd years. Prerequisite: Programming experience in a high-level language and completion of one semester of calculus.

MTH 464. NUMERICAL ANALYSIS  
An introduction to numerical algorithms as tools to providing solutions to common problems formulated in mathematics, science, and engineering. Focus is given to developing the basic understanding of the construction of numerical algorithms, their applicability, and their limitations. (Cross-listed with CS 464) Offered when demand warrants. Prerequisites: MTH 211 (Differential Equations) and programming experience in a high-level language.

MTH 470. READINGS IN MATHEMATICS  
Individual study of special topics under the supervision of a faculty member. Designed for students who have completed a substantial amount of course work in mathematics. Prerequisite: Consent of Mathematics Department Chair. May be repeated for credit if a different topic is selected.

MTH 511. MEASURE AND INTEGRATION  
Measures, measurable functions, integration, convergence theorems, product measures, signed measures. Offered when demand warrants. Prerequisite: MTH 442 or consent of instructor.

MTH 513. FUNCTIONAL ANALYSIS  
Topics include: Banach spaces, Lp-spaces, Hilbert spaces, topological vector spaces, and Banach algebras. Offered when demand warrants. Prerequisites: MTH 411 and a course in linear algebra.

MTH 532. MODERN ALGEBRA  
A study of group theory (including the Sylow Theorems and solvable groups); ring theory (including the Noetherian rings and UFDs); modules, tensor algebra, and semi-simple rings. Prerequisites: MTH 331, MTH 431, and a course in linear algebra or consent of instructor. Offered when demand warrants.

MTH 542. ALGEBRAIC TOPOLOGY  
Polyhedra, simplicial homology theory, cohomology rings, and homotopy groups. Prerequisite: MTH 442 Offered when demand warrants.
MTH 498/598. TOPICS IN MATHEMATICS  Three credits
A study of topics of special interest. It may be a continuation and intensive study of topics begun in an upper-level course in analysis, topology, algebra, or probability. May be repeated for credit if a different topic is selected.
Prerequisite: Consent of instructor

MTH 590. THESIS WRITING  Up to six credits
Each student can work toward the completion of a written basis under the direction of their faculty advisor. May be repeated for up to six credits.
Prerequisite: Consent of Department Chair.
NURSING
Mary Ann Merrigan, Ph.D., R.N., Chairperson
Deborah K. Zbegner D.N.Sc., C.R.N.P.-R.N.-C. and
Bridgette W. Zielinski Ph.D., R.N., Co-Directors

MASTER OF SCIENCE WITH MAJOR IN NURSING

PURPOSE
The purpose of the graduate program in Nursing at Wilkes University is to prepare advanced practice nurses as Clinical Nurse Specialists in either gerontological nursing or psychiatric mental health nursing, in nursing management, or in nursing education. An advanced practice nurse is a registered nurse who is prepared at the master's or doctoral level for nursing practice. This multidisciplinary program provides a foundation for doctoral study in nursing and continued professional development.

Graduates of the program are eligible to write the certification examination for Clinical Nurse Specialist by the American Nurses Credentialing Center (ANCC) upon completion of the requirements.

This program is fully accredited by the Commission on Collegiate Nursing Education (CCNE).

Each student’s program of study is planned to meet each individual’s personal goals and professional requirements.

PROGRAM OUTCOMES
1. Synthesize advanced knowledge of nursing and related disciplines in the development of advanced practice nursing for the roles of the Clinical Nurse Specialist, Nurse Manager, or Nurse Educator.
2. Develop expertise as an advanced practice nurse in the role of Clinical Nurse Specialist, Nurse Manager, or Nurse Educator.
3. Develop skills and abilities to assume the role of the Advanced Practice Nurse.
4. Evaluate nursing research for its applicability to advanced practice nursing.
5. Evaluate applicable knowledge and concepts in nursing to deal with the complexities of a dynamic society.
6. Participate in lifelong learning as a part of advanced practice nursing.

ADMISSION REQUIREMENTS
In addition to the requirements of the Graduate Division, admission to the Master’s Program in nursing requires:
1. Graduation from an approved baccalaureate program in nursing.
2. Licensure as a Registered Nurse.
3. One year of clinical experience.
4. A GPA from the original program of 3.0 or higher on a 4.0 scale.
5. An undergraduate statistics course.
6. An undergraduate research course.
7. Evidence of health assessment skills.
8. A statement of professional goals. These goals should relate to the goals of the graduate program in nursing at Wilkes.
9. Two letters of recommendation.

A student whose background is judged to be deficient in any area will be evaluated individually and a program plan that will remedy the deficiency will be developed. Courses to remedy such deficiency do not carry graduate credits.

For a personal interview to discuss program requirements and career goals, please arrange an appointment with the Chairperson or Director.

THE CURRICULUM (36/37 CREDITS)

THE CORE (18 CREDITS)
N501: Theoretical Foundations of Nursing 3 credits
N502: Application of Nursing Research 3 credits
N504: Advanced Role Development in Nursing 3 credits
N505: Current Perspectives in Nursing 3 credits
N533: Pharmacotherapeutics for Advanced Practice Nursing 3 credits
N590: Scholarly Project 3 credits

GERONTOLOGICAL ADVANCED PRACTICE CORE (18 CREDITS)
N406: Advanced Health Assessment 3 credits
N511: Perspectives on Aging 3 credits
N506: Advanced Practice in Gerontological Nursing I 3 credits
N515: Advanced Practice in Gerontological Nursing II 3 credits
Electives 3 credits
N508: Leadership and Advanced Practice Nursing 3 credits

PSYCHIATRIC MENTAL HEALTH ADVANCED PRACTICE CORE (19 CREDITS)
N525: Psychopathology of Acute and Chronic Mental Illness 4 credits
N526: Clinical Modalities in Advanced Psychiatric Mental Health Nursing Practice 3 credits
N527: Family Systems Theory I 3 credits
N528: Family Systems Theory II 3 credits
N535: Advanced Practice in Psychiatric Mental Health Nursing I 3 credits
N536: Advanced Practice in Psychiatric Mental Health Nursing II 3 credits

NURSE MANAGEMENT CORE (18 CREDITS)
Note: To evaluate readiness to take the advanced business administration courses, additional advisement by faculty in the business division will be provided.
N508: Leadership and Advanced Practice Nursing 3 credits
MBA 532: Managerial Economics 3 credits
MBA 540: Financial Management 3 credits
MBA 555: Seminar in Human Relations Management 3 credits
MBA 580: Business Issues in a Dynamic Environment 3 credits
Elective Course (arranged through advisement) 3 credits

NURSING EDUCATION CORE (18 CREDITS)
N540: The Nursing Curriculum: Development and Implementation 3 credits
N541: Teaching Methodologies and Strategies in Nursing 3 credits
N542: Evaluation in Nursing Education 3 credits
N543: The Nurse Educator Role 3 credits
N544: Clinical Practice in Education I 3 credits
N545: Clinical Practice in Education II 3 credits

PROFESSIONAL MASTER’S PROGRAM
This program admits students with baccalaureate degrees, but no previous nursing education, and prepares them for entry into the nursing profession. Upon successful completion of the program, students are awarded a Master of Science Degree with a major in Nursing. (THIS IS NOT AN ADVANCED PRACTICE DEGREE.)

The program is designed for students who already hold a baccalaureate degree in a discipline other than nursing. Completion of the requirements for this master’s level program prepares a beginning, self-directed practitioner who is capable of initiating, implementing, and revising nursing care. The curriculum is designed for the adult learner and builds upon earlier educational experience in the humanities, social studies and sciences. It is based on the development of the individual throughout the life cycle.

The curriculum flows from both the University’s and the Department’s philosophies and addresses the nursing needs of the region and the nation. It provides opportunity for individuals with changing career aspirations, and it is designed to prepare the learner for a variety of roles in professional practice. Following the completion of the prerequisite courses, the program can be completed in three sessions. Graduates of the Professional Master’s Program will be educationally eligible to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN), which must be successfully completed for registration as a professional nurse. A pass-through Bachelor of Science degree will be entered on the student's transcript upon completion of all clinical nursing courses.

PREREQUISITES:
• Applicants must have received a baccalaureate degree from an accredited institution with a minimum undergraduate GPA of 3.0.
• A 3-credit Elementary Statistics course and two semesters of Anatomy and Physiology and one semester of Microbiology, with a related laboratory experience in each of these courses, are required.
• Applicants must take the Nurse Entrance Test (NET) Form D from Educational Resources, Inc. and achieve a composite score at the 50th percentile or better in
each of the following: Essential Math Skills, Science Reading Comprehension, and Written Comprehension.

- Applicants must complete a self-study Medical Terminology module (details and information provided by the Nursing Department).
- Applicants whose native language is not English or who hail from non-English speaking countries must submit satisfactory results on the TOEFL.
- Nutrition, a co-requisite course, is to be completed no later than the students’ first semester in the Professional Master’s Program.

LENGTH OF PROGRAM:

- The total number of credits to complete the Professional Master’s Program, beyond the pre- and co-requisite requirements, is 48.
- The program can be completed in three full-time semesters.

GRADING

A = 4.0 = 92-100%; Academic achievement of superior quality
B+ = 3.5 = 83-91%; Academic achievement of good quality
B = 3.0 = 75-82%; Academic achievement of acceptable quality in meeting graduation requirements
F = 0.0 = below 75%; Failure. No graduate course credit.

ACADEMIC PROGRESSION

Any grade below 75 in a nursing course is a failure. A student who is unsuccessful in a nursing course is ineligible to continue in, and may not return to, the Professional Master’s Program.

RECOMMENDED COURSE SEQUENCE FOR PROFESSIONAL MASTER’S PROGRAM

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>SECOND SEMESTER</th>
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<tbody>
<tr>
<td>NSG 401 Nursing Practice I</td>
<td>NSG 402 Nursing Practice II</td>
</tr>
<tr>
<td>NSG 505 Current Perspectives in Nursing</td>
<td>NSG 406 Adv. Health Assessment</td>
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<td></td>
<td>NSG 498 Pharmacotherapeutics and</td>
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<tr>
<td></td>
<td>Clinical Decision-Making in Nursing I</td>
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<td></td>
<td>15 credits</td>
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<td>17 credits</td>
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THIRD SEMESTER

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<tbody>
<tr>
<td>NSG 403 Nursing Practice III</td>
<td>NSG 502 Application of NSG Research</td>
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<tr>
<td>NSG 498 Pharmacotherapeutics and Clinical Decision-Making in Nursing II</td>
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<td>16 credits</td>
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</table>

Clinical hours will be distributed among acute, chronic, and community settings. Opportunities for practice and application of classroom knowledge are included in each clinical
nursing course. Regional cooperating agencies offer a variety of settings for nursing practice. In addition, an on-campus Clinical Nursing Simulation Center, equipped with audio-visual and computer-assisted instructions materials, is used to augment learning.

**PROGRAM OUTCOMES:**

1. Synthesize knowledge from the humanities, the physical and social sciences, nursing theory, and applied research as a basis for professional practice.
2. Use the nursing process to prevent illness and promote, maintain, and/or restore health to clients.
3. Function within the legal and ethical parameters of professional roles in managing health care with clients.
4. Collaborate, as a member of the health team, with individuals, families, and communities.
5. Use research in nursing practice.
6. Demonstrate the clinical competencies of a beginning, self-directed professional practitioner.
7. Enter advanced practice programs to earn a specialty practice degree or certificate.

**THE CURRICULUM (48 CREDITS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>N401:</td>
<td>Nursing Practice I</td>
<td>12</td>
</tr>
<tr>
<td>N402:</td>
<td>Nursing Practice II</td>
<td>12</td>
</tr>
<tr>
<td>N403:</td>
<td>Nursing Practice III</td>
<td>12</td>
</tr>
<tr>
<td>N406:</td>
<td>Advanced Health Assessment</td>
<td>3</td>
</tr>
<tr>
<td>N505:</td>
<td>Current Perspectives in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>N502:</td>
<td>Application of Nursing Research</td>
<td>3</td>
</tr>
<tr>
<td>N498:</td>
<td>Pharmacotherapeutics and Clinical Decision-Making in Nursing (second and third semesters)</td>
<td>3</td>
</tr>
</tbody>
</table>

**R.N.-M.S. PROGRAM**

**PURPOSE**

This accelerated program is designed for the experienced, practicing registered nurse who plans to continue nursing studies through the master’s level and does not hold a baccalaureate degree. Adjustments of the undergraduate requirements permit rapid progress into the graduate level. The Master's Program remains intact and prepares an advanced practice nurse. Program plans are individualized for each student. Time to complete the program is related to the applicability of transfer credit as well as the number of credits taken in any semester.

An interview with the Program Director is required prior to entry into the program. Formal admission to Wilkes University is necessary and will include evaluation of transfer credits.

Prerequisites for admission into the program:
POST-MASTER’S DEGREE CERTIFICATE PROGRAMS IN ADULT PSYCHIATRIC-MENTAL HEALTH NURSING, GERONTOLOGICAL NURSING, NURSING MANAGEMENT, OR NURSING EDUCATION

PURPOSE
This program is designed for professional nurses who have earned a Master’s Degree in Nursing and who seek further education in order to qualify for certification as a Clinical Nurse Specialist in Gerontological Nursing, Adult Psychiatric-Mental Health Nursing, Nursing Management, or Nursing Education. No degree will be awarded.

ADMISSION CRITERIA:
• Master’s degree with a major in nursing from a program approved by either The National League for Nursing (NLN) or The Commission on Collegiate Nursing Education (CCNE).
• GPA 3.0 on a 4.0 scale
• Current Pennsylvania registered nurse license.
• Two years of recent professional experience in nursing.
• Personal interview with a Department of Nursing faculty member.
• Completed application for admission to Graduate Studies, including academic transcripts.
• Two letters of reference from health care professionals attesting to the candidate’s clinical expertise.
• Statement of professional goals.

REQUIREMENTS:
Students will be required to take all of the specialty courses (21 credits for Gerontological Nursing and 22 credits for Adult Psychiatric-Mental Health Nursing). Students may transfer up to six (6) credits if taken within the past five (5) years.

GERONTOLOGICAL ADVANCED PRACTICE COURSES (21 CREDITS)
N406: Health Assessment of the Elderly 3 credits
N508: Leadership and Advanced Practice Nursing 3 credits
N511: Perspectives on Aging 3 credits
N506: Advanced Practice in Gerontological Nursing I 3 credits
N515: Advanced Practice in Gerontological Nursing II 3 credits
N533: Pharmacotherapeutics for Advanced Practice Nursing 3 credits
Graduate-Level Elective 3 credits*
### PSYCHIATRIC MENTAL HEALTH ADVANCED PRACTICE COURSES (22 CREDITS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>N525:</td>
<td>Psychopathology of Acute and Chronic Mental Illness</td>
<td>4 credits</td>
</tr>
<tr>
<td>N526:</td>
<td>Clinical Modalities in Advanced Psychiatric Mental Health Nursing Practice</td>
<td>3 credits</td>
</tr>
<tr>
<td>N527:</td>
<td>Family Systems Theory I</td>
<td>3 credits</td>
</tr>
<tr>
<td>N528:</td>
<td>Family Systems Theory II</td>
<td>3 credits</td>
</tr>
<tr>
<td>N535:</td>
<td>Advanced Practice in Psychiatric Mental Health Nursing I</td>
<td>3 credits</td>
</tr>
<tr>
<td>N536:</td>
<td>Advanced Practice in Psychiatric Mental Health Nursing II</td>
<td>3 credits</td>
</tr>
<tr>
<td>N533:</td>
<td>Pharmacotherapeutics for Advanced Practice Nursing</td>
<td>3 credits</td>
</tr>
</tbody>
</table>

*To meet this requirement students must take N533 or have completed a 3-credit advanced pharmacotherapeutics course within the past five years. Courses completed prior to the five-year limit must be accompanied by evidence of at least three hours of continuing education in advanced pharmacotherapeutics for each year surpassing the five-year limit.

### NURSING MANAGEMENT (18 CREDITS)*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>N508:</td>
<td>Leadership and Advanced Practice Nursing</td>
<td>3 credits</td>
</tr>
<tr>
<td>MBA 532:</td>
<td>Managerial Economics</td>
<td>3 credits</td>
</tr>
<tr>
<td>MBA 540:</td>
<td>Financial Management</td>
<td>3 credits</td>
</tr>
<tr>
<td>MBA 555:</td>
<td>Seminar in Human Relations Management</td>
<td>3 credits</td>
</tr>
<tr>
<td>MBA 580:</td>
<td>Business Issues in a Dynamic Environment</td>
<td>3 credits</td>
</tr>
<tr>
<td>Elective Course (Arranged through advisement)</td>
<td>3 credits</td>
<td></td>
</tr>
</tbody>
</table>

*To evaluate readiness to take the advanced business administration courses, additional advisement by business division faculty will be provided.

### NURSING EDUCATION CORE (18 CREDITS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>N540:</td>
<td>The Nursing Curriculum: Development and Implementation</td>
<td>3 credits</td>
</tr>
<tr>
<td>N541:</td>
<td>Teaching Methodologies and Strategies in Nursing</td>
<td>3 credits</td>
</tr>
<tr>
<td>N542:</td>
<td>Evaluation in Nursing Education</td>
<td>3 credits</td>
</tr>
<tr>
<td>N543:</td>
<td>The Nurse Educator Role</td>
<td>3 credits</td>
</tr>
<tr>
<td>N544:</td>
<td>Clinical Practice in Education I</td>
<td>3 credits</td>
</tr>
<tr>
<td>N545:</td>
<td>Clinical Practice in Education II</td>
<td>3 credits</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTIONS

**NOTE:** Students in practicum courses must carry personal liability insurance.

**NURSING 401. NURSING PRACTICE I**

12 credits

This course introduces the student to the profession of nursing. Use of the nursing process is emphasized in meeting the human needs of clients identified as individuals, families, and communities. Nursing theory is correlated with clinical practice in the Nursing Learning Center and selected clinical agencies.

Hours weekly: 9 hours class; 12 hours clinical
NURSING 402. NURSING PRACTICE II  
12 credits
Building on the foundation of Nursing 401, the nursing process is used to assist individuals, families, and communities to achieve optimum health and to resolve selected medical, surgical, and mental health problems. Nursing theory is correlated with clinical practice in the Nursing Learning Center and selected clinical agencies.
Hours weekly: 7 hours class; 15 hours clinical
Prerequisites: NSG 401, 505

NURSING 403. NURSING PRACTICE III  
12 credits
This course prepares the student for professional role development in emerging health care delivery systems. The nursing process is utilized in assisting individuals, families, and communities to meet their health needs. Nursing theory is correlated with clinical practice in a variety of health care settings.
Hours weekly: 6 hours class; 18 hours clinical practice
Prerequisites: NSG 401, 402, 406, 498I, 505

NURSING 406. ADVANCED HEALTH ASSESSMENT  
Three credits
This course presents an overview of the full and comprehensive health assessment of the adult client. Emphasis on multiple aspects of assessment, including physical, functional, and mental health assessment along with transcultural variations, will prepare the student for advanced practice nursing. Students are given the opportunity to practice their assessment skills in a laboratory component.
Prerequisite: Graduate standing or permission of instructor.

NURSING 498. PHARMACOTHERAPEUTICS AND CLINICAL DECISION-MAKING IN NURSING  
2 modules (2 credit/1 credit) 3 credits
This course is designed to assist students to understand the multidisciplinary science of pharmacology based on human systems. Content includes drug classifications, indications, adverse effects and contraindications, age-related variables, dosages, and nursing implications. Using critical thinking skills related to drug therapy, clinical decision-making is developed.

NURSING 501. THEORETICAL FOUNDATIONS OF NURSING  
Three credits
This course emphasizes the systematic process of theory development in nursing. The role of traditional science in relation to other ways of knowing is explored. Students will describe, analyze, and evaluate current theories of nursing. The relationship of research and practice to theory is discussed.
Prerequisite: Graduate standing.

NURSING 502. APPLICATION OF NURSING RESEARCH  
Three credits
This course builds on knowledge and skills developed in undergraduate research and statistics courses. Skills in the analysis and evaluation of nursing research are further developed. Students analyze the contributions of the empirical approach to the development of nursing science. Selected research designs and methodologies which are used to advance nursing knowledge are examined. Students are given the opportunity to critique and synthe-
size current research for its application to an identified problem in nursing practice.
Prerequisite: Undergraduate Statistics

**NURSING 504. ADVANCED ROLE DEVELOPMENT IN NURSING**  Three credits
Examines the role development process and its applicability to the advanced practice role in nursing. The historical, theoretical, and conceptual basis of role development, advanced practice, and evaluation are explored. A framework for practice, which includes the sub-roles of direct care provider, educator, researcher, manager and consultant, is examined.
Prerequisite: Graduate Standing.

**NURSING 505. CURRENT PERSPECTIVES IN NURSING**  Three credits
Analysis of issues relative to advanced nursing practice. Assessment of proposed approaches to the resolution of issues, based on current literature and research findings, is done collaboratively in a seminar format.
Prerequisite: Graduate standing

**NURSING 506. ADVANCED PRACTICE IN GERONTOLOGICAL NURSING I**  Three credits
Students use theories from nursing and other sciences to plan, manage, and evaluate direct care services provided to older adults and their families in community settings. Clinical experience focuses on case management, including advanced assessment, diagnosis, planning and evaluation as it relates to health promotion and maintenance in this population. Opportunities for interdisciplinary experience and collaborative practice are provided. The seminar component of the course is designed to develop clinical decision-making skills through case study presentations and extend the theoretical and research base of advanced clinical practice. (Seminar plus 250 clinical practice hours)
Prerequisites: NSG 406, 501, 511, and 504 (may be taken concurrently)

**NURSING 508. LEADERSHIP AND ADVANCED PRACTICE NURSING**  Three credits
This course provides an opportunity for students to discuss theoretical foundations of leadership and management as they relate to the multifaceted role of the advanced practice nurse. The health care environment, with its ongoing changes in organization and financing, is impacted by changes in health policy, regulatory processes, and quality measures. The understanding of this content will prepare the student to provide quality cost-effective care, to participate in the design and implementation of care in a variety of health care systems, and to assume a leadership role in the managing of human, fiscal, and physical care resources.
Prerequisites: NSG 504 or graduate standing with permission of the instructor

**NURSING 511. PERSPECTIVES ON AGING**  Three credits
Human development from adulthood through old age is analyzed from a multidisciplinary perspective. The interrelationship of physical, psychological, and social processes of aging is analyzed. Holistic assessment of aging, including the interaction between an aging society and the subsequent increase in chronic health problems as they impact on social resources
NURSING

and health care delivery, is emphasized.
Prerequisite: Graduate standing

NURSING 515. ADVANCED PRACTICE IN GERONTOLOGICAL NURSING II
Three credits

Students use theories from nursing and other sciences to plan, manage and evaluate direct care services provided to frail older adults and their families in institutional and community settings. Clinical experience focuses on case management, including advanced assessment, diagnosis, planning and evaluation as it relates to the management of acute conditions and complex chronic health problems. Opportunities for interdisciplinary experiences and collaborative practice are provided. The seminar component of the course is designed to develop clinical decision-making skills through case study presentations and to extend the theoretical and research base of advanced clinical practice. (Seminar plus 250 clinical practice hours)
Prerequisites: NSG 406, 501, 511, and 504 (may be taken concurrently)

NURSING 525. PSYCHOPATHOLOGY OF ACUTE AND CHRONIC MENTAL ILLNESS
Four credits

This course explores the development of mental illness in adults with an emphasis on growth and development issues, psychopathological processes, diagnostic criteria, and treatment of individuals with these illnesses pertinent to advanced nursing practice.
Prerequisite: Graduate standing or the permission of the instructor.

NURSING 526. CLINICAL MODALITIES IN ADVANCED PSYCHIATRIC MENTAL HEALTH NURSING PRACTICE
Three credits

This course provides a foundation in the major systems of therapy for individuals and groups used in advanced psychiatric mental health nursing and other disciplines engaged in mental health practice. Focus will be on therapeutic modalities such as brief psychotherapy, group processes and practices, milieu therapy and crisis intervention as they relate to advanced nursing practice in mental health.
Prerequisite: Graduate standing

NURSING 527. FAMILY SYSTEMS THEORY I
Three credits

This course examines the process of human development in the context of the family relationship system. A theoretical framework for understanding this process and the therapeutic methods that derive from it are presented. Orientation to various methods and techniques of family therapy is provided.
Prerequisite: Graduate standing or the permission of the instructor

NURSING 528. FAMILY SYSTEMS THEORY II
Three credits

Critical phases or occurrences in the family that can interfere with, or enhance, human growth and development are addressed in this course. Problems are discussed both from a theoretical and therapeutic perspective.
Prerequisite: NSG 527
**NURSING 530. PRINCIPLES AND PRACTICES OF ADULT EDUCATION**

This elective course examines research and theory in adult education which serve as a basis for program development and design. It includes teaching/learning strategies, legal/ethical issues, marketing and sources of funding for adult education programs.

**NURSING 531. MENTAL HEALTH IN THE ELDERLY**

This elective course presents an overview of mental health and aging that is grounded in an integrated biopsychosocial approach to human behavior. Designed to bring professionals up to date on society’s approach to the basic issues that confront those in the field of aging, it features exploration of issues related to prevention, recognition, and management of major psychiatric disorders affecting the elderly in a variety of settings. Content includes tools for assessment of mental health and functional status and responses to problematic behaviors. Research related to course topics will be evaluated in terms of its applicability to clinical practice.

**NURSING 533. PHARMACOTHERAPEUTICS FOR ADVANCED PRACTICE NURSING**

This course explores the basic concepts of clinical pharmacokinetics and their application in drug regime design and monitoring. Pharmacotherapy for major diseases is emphasized. The course provides the student with a strong background in pharmacological agents and basic pharmacological principles. The course highlights major drug categories, purpose of action, common interactions and contraindications. Nursing and pharmacy practice faculty work collaboratively to provide the student with case studies that allow students to demonstrate their understanding of applied pharmacotherapy within the parameters of advanced practice nursing.

**NURSING 535. ADVANCED PRACTICE IN PSYCHIATRIC MENTAL HEALTH NURSING I**

Supervised advanced psychiatric mental health nursing practice is undertaken with adults and/or older adults and their families in a variety of settings. Theories and practice are integrated to address the process of assessment and diagnosis of functional and dysfunctional patterns of behaviors; the formation of initial intervention strategies; and implementation of treatment and case management of psychiatric clients. A minimum of 15 hours of practice and 3 hours of small group supervision is required each week. (Total: 250 practice hours)

Prerequisites or co-requisites: NSG 525, 526, and 527

**NURSING 536. ADVANCED PRACTICE IN PSYCHIATRIC MENTAL HEALTH NURSING II**

Supervised advanced psychiatric mental health nursing practice is undertaken with adults and/or older adults and their families in a variety of settings. The focus is on the refinement and development of clinical interventions. Outcome evaluation, termination and professional role development are emphasized. A minimum of 15 hours of practice and 3 hours
of small group supervision is required each week. (Total: 250 practice hours)
Prerequisites or co-requisites: NSG 528, 533, and 535

NURSING 540. THE NURSING CURRICULUM: DEVELOPMENT AND IMPLEMENTATION Three credits
This course provides a foundation to understand the core of knowledge of educational processes which undergird nursing education. Competencies needed by nurse educators are explored; principles, philosophies and theories of learning, curriculum development, professional socialization, and accreditation as well as legal requirements for nursing programs are discussed. The relationship between curricular design and accreditation standards is described.
Prerequisite: NSG 501 or graduate standing

NURSING 541. TEACHING METHODOLOGIES AND STRATEGIES IN NURSING Three credits
Building on knowledge of curriculum and learning, approaches to classroom and clinical teaching are explored. Learning outcomes as they relate to instructional teaching/learning interventions are developed. The use of instructional technology is included.
Prerequisite: NSG 540 or graduate standing

NURSING 542. EVALUATION IN NURSING EDUCATION Three credits
Evaluation methodologies from selection of applicants through the meeting of graduation requirements will be explored. Testing strategies and test reliability will be discussed. Classroom and clinical achievement will be included. Faculty evaluation as well as student measurement will be discussed.
Prerequisite: Graduate standing

NURSING 543. THE NURSE EDUCATOR ROLE Three credits
The nurse educator may be found in many settings: academic, acute and long-term care facilities, corporate and community organizations. This course forms a foundation for planning a career in education. Content encompasses beginning skills, development of a curriculum vita, power and politics in educational settings, academic promotion and the tenure process. Professional accountability and academic freedom are included within the context of educational practice.
Prerequisite: Nursing 504 or graduate standing

NURSING 544. CLINICAL PRACTICE IN EDUCATION I Three credits
Nursing 544 and 545 are practicum courses that provide an opportunity to actively participate in a faculty role within an educational setting. The first semester will focus on classroom teaching; the second semester will focus on teaching in a clinical setting. One hundred hours of practice are required in each semester. (Seminar plus 100 practice hours)
Prerequisites/co-requisites: Nursing 540, 541, 542

NURSING 545. CLINICAL PRACTICE IN EDUCATION II Three credits
Nursing 544 and 545 are practicum courses that provide an opportunity to actively partic-
ipate in a faculty role within an educational setting. The first semester will focus on class-
room teaching; the second semester will focus on teaching in a clinical setting. One hun-
dred hours of practice are required in each semester. (Seminar plus 100 practice hours)
Prerequisite: Nursing 544

**NURSING 590. SCHOLARLY PROJECT**  
Three credits
The student, under the guidance of a selected faculty member, will critique and synthesize relevant research and literature on a clinical problem in nursing. The student will explore interrelationships between ideas in a scholarly manner. Implications for advanced nursing practice will be addressed. Each student will present his/her project upon its completion. Prerequisite: Consent of instructor

**NURSING 596-596. INDEPENDENT STUDY**  
One to three credits
Affords an opportunity for independent study of selected topics under faculty supervision. Prerequisite: Permission of Department Chairperson or Program Director

**NURSING 598. TOPICS IN NURSING**  
Three credits
Advanced study of topics of special interest not extensively treated in regular courses. Prerequisite: Graduate standing

**ELECTIVE COURSES**
In consultation with the advisor, the graduate student may choose any graduate course available in any program in the University.
See Business Administration for MBA course descriptions.
The School of Pharmacy offers a program of professional study leading to the Doctor of Pharmacy (Pharm.D.) degree. The purpose of the program is to prepare graduates for successful pharmacy practice in the health care environment of the twenty-first century. The U.S. health care system has been undergoing rapid, even dramatic, change. This transformation is expected by most observers to continue for some time. Those individuals and organizations responsible for the delivery of pharmaceutical care have not been and will not be sheltered from the forces of change. It becomes necessary, therefore, to provide new practitioners with the necessary knowledge base and skills required in a transformed health care system.

With the rapid transformation of health care delivery, a strong foundation in the basic sciences (e.g., pharmaceutics, pharmacology, medicinal chemistry, anatomy and physiology) remains essential while clinical knowledge (e.g., therapeutics, pharmacokinetics, pathophysiology) and skills (e.g. physical assessment, patient counseling, clinical decision-making) become even more important. Successful practice will demand an improved understanding of the social sciences (e.g., psychology, sociology, economics, health policy, management). Most importantly, the future pharmacy practitioner must have outstanding interpersonal skills. Among these are the ability to communicate effectively and to function in a team environment.

**OUR MISSION**

The primary mission of the School of Pharmacy at Wilkes University is to provide a dynamic, challenging, outcome-driven, and integrated curriculum, focused on pharmaceutical care that will serve as the foundation for lifelong learning and practice. Consistent with the Wilkes University mission, the School of Pharmacy brings together and retains qualified students and a dedicated faculty and staff from a variety of disciplines in a supportive atmosphere that encourages intellectual and personal development.

**OUR VISION**

We will be a national innovator in pharmacy education and a regional center for post-graduate pharmacy education. Our graduates will be able to provide quality pharmaceutical care to patients in a wide range of health systems, in urban and rural areas, and will be leaders in the profession. Finally, we will be a good corporate citizen through meaningful service to the University, the health professions and the local community.

**OUR VALUES**

1. **Teaching.** This is primarily a teaching institution; the student is our reason for being here.
2. **Pharm.D.** Teaching resources are devoted primarily to preparing students for one degree: the Doctor of Pharmacy.
3. Communications. Our graduates will have solid communication skills. In order to be effective professionals they must be able to articulate their knowledge with health professionals, administrators and patients.

4. Team Building. The ability to work effectively as part of a health care team is considered critical.

5. Interdisciplinary Approach. Pharmacy does not have all of the answers to health care or even pharmacy care problems. The broader perspectives of other academic disciplines are actively sought in curricular design and teaching.

6. Small Size. We are a small school and intend to remain small. Meaningful faculty-student interaction is valued. The size of each entering pharmacy class is limited to 65 students.

7. Technology and Future Orientation. Our facilities, curriculum and faculty are focused upon training practitioners for the 21st century. Emphasis is placed upon new technologies, as this is a major foundation for future pharmacy practice.

8. Research and Practice. Research and practice are valued primarily as they support our commitment to educational excellence and faculty development and are valued as they affect patient care and/or lead to the advancement of science.

ACCREDITATION
The American Council on Pharmaceutical Education (ACPE) has granted the Doctor of Pharmacy (Pharm.D.) program at Wilkes University full accreditation.

The six-year Pharmacy Program at Wilkes consists of two components. The first is the two-year Prepharmacy Program and the second is the Professional Program.

PROFESSIONAL PROGRAM
The Professional Program is four years and leads to the Doctor of Pharmacy (Pharm.D.) degree. Graduates of the program are eligible for state examination to become licensed pharmacists after completing appropriate internship hours. The four years of education consist of three years of in-class (i.e., lecture, laboratory, discussion group) and one year of experiential education.

Admission into the Professional Program (Enrollment limit: 65)
To be admitted into the Professional Program of the School of Pharmacy, a student must have either enrolled in and successfully completed the Prepharmacy Program at Wilkes University or have submitted a successful application to the School of Pharmacy.

ADMISSION THROUGH THE APPLICATION PROCESS
Historically, there have been more applicants than available positions. This requires the faculty to select from among the applicants who will have the best opportunity to complete the curriculum within four years and have productive professional lives. Admission is based upon the student's academic ability as reflected in grades from prepharmacy courses, number of courses repeated, typical course loads, PCAT scores, total academic career, and references, as well as a successful interview. If applicable, the committee will also consider the
most recent academic performance for those non-traditional students returning to college life after hiatus. Each spring a select group of applicants are invited for a series of interviews. Selection for interview is based upon complete evaluation of all submitted application materials. Any missing documentation will compromise the application.

HOW TO APPLY

Applicants must obtain an application for School of Pharmacy admission from the School of Pharmacy and return the completed application to the School of Pharmacy. Please note that this is not the same as the Wilkes University application obtained from the University's Admissions Office. Priority will be given to completed applications (including PCAT) received by February 1 for the upcoming fall semester.

To obtain a School of Pharmacy application, you may call or write:

School of Pharmacy
Wilkes University
Wilkes-Barre, PA 18766
(570) 408-4280
1-800-WILKESU ext. 4280
pharm@wilkes.edu

The application is also available on the web at: www.wilkes.edu/pharm/

PHARMACY MINIMUM ADMISSION REQUIREMENTS

To be considered for admission to the Professional Program of the School of Pharmacy, the applicant must:

• complete the Wilkes University General Education Course Requirements or have completed a baccalaureate degree;
• complete the Pharmacy Prerequisite Courses listed below by the end of the spring term prior to admission;
• if a Wilkes student, have a minimum overall GPA of 2.50 and a minimum GPA of 2.50 in the Pharmacy Prerequisite Courses listed below;
• if a non-Wilkes student, have a minimum overall GPA of 3.00 and a minimum GPA of 3.00 in the Pharmacy Prerequisites listed below for preferential consideration. Non-Wilkes students with overall GPAs less than 3.00 will be considered for admission on a lower priority;
• obtain a grade of C (2.0) or better in each of the Pharmacy Prerequisite Courses listed below;
• provide three completed recommendation forms, one of which must be from a pharmacist;
• successfully complete the interview process;
• demonstrate acceptable written communication skills;
• take a standardized test of critical thinking skills; and
• submit scores on the Pharmacy College Admission Test (PCAT) by February 1.
PHARMACY PREREQUISITES:
Two semesters (8 credits) of General Chemistry with labs
Two semesters (8 credits) of Organic Chemistry with labs
Two semesters (8 credits) of General Biology with labs
One semester (4 credits) of Calculus
One semester (3 credits) of Statistics
One semester (4 credits) of General Physics with lab
One semester (3 credits) of Microeconomics
One semester (3 credits) of Oral Communications

PROFESSIONAL STANDARDS
Students enrolled in the program of the School of Pharmacy are expected to endorse professional standards by subscribing to the Oath of the Pharmacist. Students are also expected to abide by the American Pharmaceutical Association’s Code of Ethics of the Profession.

PROGRESSION REQUIREMENTS
All students in the Professional Program of the School of Pharmacy are required to meet minimum standards for academic progression. Progression requirements include a minimum semester and a cumulative pharmacy GPA of 2.0. In addition, no student shall be allowed more than 8.0 credits of less than 2.0 grades in required professional courses both inside and outside of the School. Any course with a grade of 0 must be repeated. At the end of each semester the progress of each student in the Professional Program will be reviewed. Students failing to meet minimal academic standards at the end of any semester must petition the Student Review Subcommittee through the Assistant Dean to further progress in the School. More inclusive policies adopted within these guidelines are distributed to all students in the School of Pharmacy. Students are expected to read and abide by these guidelines.

EXPERIENTIAL CURRICULUM COMPONENT
As the experiential portion of the curriculum begins in the second professional year (P-2), all students are required to possess professional liability insurance, to have documentation of immunizations, to pass a physical examination, and to be certified in Basic Cardiac Life Support and in Basic First Aid upon entering the P-2 year.

The fourth professional year (P-4) of the Pharmacy Program is devoted entirely to advanced pharmacy practice experiences in a variety of patient-care sites (e.g. hospitals, clinics, and pharmacies). Each student will be assigned by the School to six advanced pharmacy practice experiences, some of which may be at some distance from the Wilkes campus. Prior to entering advanced pharmacy practice experiences, students must have completed all didactic pharmacy coursework. During the advanced pharmacy practice experiences, students are required to complete, at minimum, 40 contact hours per week of practice experience in a variety of health care settings. Since patient care is a continuous activity, off-campus advanced pharmacy practice experiences may be conducted outside of
school hours. Note also that some advanced pharmacy practice experiences start and end dates will not adhere strictly to the regular University calendar.

The student is responsible for paying all transportation and housing costs for all experiential components of the curriculum.

GRADUATION, DEGREE AND LICENSURE REQUIREMENTS

It is the student’s responsibility to meet all graduation requirements, and it is expected that all students accepted into the Pharm.D. Program will meet regularly and frequently with their advisors to ensure timely progress toward their Doctor of Pharmacy degree. Graduation is dependent on successful completion of all required and elective course requirements in the School of Pharmacy (see Progression Requirements) AND completion of all General Education Requirements mandated by Wilkes University.

A student entering the Professional Program with a bachelor’s degree from a four-year accredited college or university is exempted from the University’s General Education Requirements, but is not exempted from the prerequisite entry requirements prescribed by the School of Pharmacy for entry into the Professional Program.

All non-degreed students entering the Professional Programs are encouraged to complete the General Education Requirements prior to beginning the Professional Curriculum, and especially before the completion of the second professional year (P-2). As a matter of record, non-degreed students who have successfully completed the second professional year (P-2) in the School of Pharmacy AND completed all General Education Requirements will be awarded a generic Bachelor of Science degree. The pass-through B.S. degree does not meet eligibility requirements for licensure as a pharmacist; it is only intended to acknowledge the academic achievement of students completing four years of university-level education.

In the United States, each state determines the eligibility for Pharmacy licensure in that state. All states require graduation from an accredited School or College of Pharmacy. Additional requirements for licensure should be requested from the state in which licensure is sought.

The School of Pharmacy reserves the right to revise the Pharmacy Curriculum at any time in order to prepare students for future practice roles, meet new accreditation requirements and to incorporate innovations in instruction.

THE DOCTOR OF PHARMACY PROGRAM REQUIRED COURSES AND RECOMMENDED COURSE SEQUENCE FOR PROFESSIONAL PROGRAM

<table>
<thead>
<tr>
<th>P-1 FALL SEMESTER</th>
<th>P-1 SPRING SEMESTER</th>
</tr>
</thead>
</table>
| PHA 301 Found. of Pharm. Practice I | 2 PHA 302 Pharmaceutical Care Lab I | 1
### PHARMACIST 308 Pharm. and Health Care Delivery 3
### PHA 311 Pharmaceutics I 4
### PHA 313 Pharm. Calculations 1
### PHA 327 Medical Microbiology 4
### PHA 331 Anatomy/Physiology I 4

#### PHA 304 Found. of Pharm. Practice II 2
PHA 310 Clinical Research Design 3
PHA 312 Pharmaceutics II 4
PHA 332 Anatomy & Physiology II 4
PHA 365 Medical Biochemistry 4

#### 18 18

### P-2 FALL SEMESTER
PHA 401 Pharmaceutical Care Lab II 1
PHA 403 Intro. to Pharmacy Practice Exp. 1
PHA 405 Pharmaceutical Care Systems 2
PHA 411 Biopharm/Clinical Kinetics 4
PHA 421 Pharmacotherapeutics I 2
PHA 423 Pharmacotherapeutics II 2
PHA 425 Pharmacotherapeutics III 3
Professional Elective 2

#### 18

### P-2 SPRING SEMESTER
PHA 402 Pharmaceutical Care Lab III 1
PHA 410 Biotechnology/Immunology 3
PHA 412 Mgt. of Pharm. Operations 3
PHA 426 Pharmacotherapeutics IV 2
PHA 428 Pharmacotherapeutics V 4
PHA 430 Pharmacotherapeutics VI 2
Professional Elective 3

#### 18

### P-3 FALL SEMESTER
PHA 501 Pharmaceutical Care Lab IV 1
PHA 503 Longitudinal Care I 1
PHA 505 Pharmacy Law 2
PHA 509 Economic Evaluation of Pharm. 3
PHA 521 Pharmacotherapeutics VII 2
PHA 523 Pharmacotherapeutics VIII 4
PHA 525 Pharmacotherapeutics IX 2
Professional Elective 3

#### 18

### P-3 SPRING SEMESTER
PHA 502 Pharmaceutical Care Lab V 1
PHA 504 Longitudinal Care II 1
PHA 526 Pharmacotherapeutics X 2
PHA 528 Pharmacotherapeutics XI 2
PHA 530 Pharmacotherapeutics XII 4
PHA 532 Alternative Medicine/Nutrition 3
Professional Elective 3

#### 18

### P-4 ADVANCED PHARMACY PRACTICE EXPERIENTIAL YEAR
PHA 510 Medicine 6 weeks 6
PHA 511 Ambulatory Care 6 weeks 6
PHA 512 Community Practice 6 weeks 6
PHA 513 Rural Practice 6 weeks 6
Elective Advanced Pharmacy Practice Experiences 2 @ 6 weeks 12

#### 36
PHA 301 & PHA 304. FOUNDATIONS OF PHARMACY PRACTICE  
Two credits each
The purpose of this course sequence is to provide the student with the foundational concepts and skills needed to practice pharmacy in the 21st century as the role of the pharmacist expands and continues to change. In addition to one's knowledge of the scientific basis of practice, the ability to communicate and be an effective team member is critical to the pharmacist’s role as an educator, clinician and member of the health-care team. As such, the student will experience the processes of self-and group-assessment, team development and the use of effective communication strategies through discussions, assignments, role-playing and case studies. A unique feature of this course-sequence is the interdisciplinary faculty team. The expertise and perspective of each faculty member contribute to the development and teaching of this course. Furthermore, this approach demonstrates the relevance and importance of other disciplinary subject matter to the development and maturation of a pharmacy practitioner. 
Prerequisite: P-1 standing.

PHA 302, 401, 402, 501, 502. PHARMACEUTICAL CARE LAB I - V  
One credit each
This five-semester sequence is designed to develop the student’s ability to integrate and apply information as well as practice skills that are taught throughout the curriculum. The use of case studies, role-plays, presentations and other active-learning strategies engages students in the learning process and requires them to synthesize information at increasing levels of complexity as the student moves through the course sequence. Fee: $30. 
Prerequisite: P-1, P-2 or P-3 standing as appropriate for each laboratory.

PHA 308. PHARMACEUTICAL AND HEALTH CARE DELIVERY  
Three credits
Examination of health and pharmaceutical delivery in the U.S. conducted from a societal perspective. Emphasis is on public policy, economic behavior and outcomes. Application will be made to various pharmaceutical sectors (e.g., retail, health systems, manufacturing). Students should gain an understanding of the factors driving transformation of health care delivery and the implications for future pharmacy practice. Lecture: Three hours per week. 
Prerequisite: P-1 standing or consent of instructor.

PHA 310. CLINICAL RESEARCH AND DESIGN  
Three credits
Application of research design concepts and statistical techniques to design, critically analyze and interpret preclinical, clinical and economic studies of pharmaceuticals and treatment plans. Lecture: Three hours per week.
Prerequisite: MTH 150 or equivalent and P-1 standing or consent of instructor.

PHA 311 & PHA 312. PHARMACEUTICS I & II  
Four credits each
The study and application of physico-chemical principles that are necessary for the design, development and preparation of pharmaceutical dosage forms. The study of quantitative
skills necessary for an understanding of the basic and clinical pharmaceutical sciences, including skills in pharmaceutical calculations and extemporaneous preparation of dosage forms. Lecture: Three hours per week. Laboratory/Recitation: Three hours per week. Fee: $80.
Prerequisite: P-1 standing or consent of instructor. PHA 311 is a prerequisite for PHA 312.

**PHA 313. PHARMACY CALCULATIONS** One credit
The common mathematical processes that a pharmacist may encounter in professional practice are covered. Interpretation of the prescription, including Latin abbreviations, will be discussed. Medical terminology and the generic name, trade name, manufacturer and classification of the top 100 drugs will also be presented. Lecture one hour per week.
Prerequisite: P-1 standing or consent of instructor.

**PHA 327. MEDICAL MICROBIOLOGY** Four credits
An overview of microbiology with special emphasis on pathogenic microbiology. Lecture: Three hours per week. Laboratory: Three hours per week. Fee: $80. (Cross-listed with BIO 327).
Prerequisite: P-1 standing or consent of instructor.

**PHA 331 & PHA 332. MEDICAL ANATOMY & PHYSIOLOGY I & II** Four credits each
In-depth principles of human anatomy and physiology as well as an introduction to pathophysiology will be presented. Lecture: Two hours per week. Laboratory/Recitation: Three hours per week. Discussion/Recitation: Two hours per week. Fee $80.
Prerequisite: P-1 standing or consent of instructor. PHA 331 is a prerequisite for PHA 332.

**PHA 365. MEDICAL BIOCHEMISTRY** Four credits
Introduction to basic biochemistry concepts, focusing on the structure and function of vitamins, proteins, and lipids as well as bioenergetics and major catabolic pathways. The catabolism of carbohydrates, fats and amino acids will be discussed including reactions and regulation. Common metabolic pathways of drugs, enzyme induction and metabolism down regulation will also be presented. Lecture: Four hours per week. (Cross-listed with CHM 365).
Prerequisite: P-1 standing or consent of instructor.

**PHA 403. INTRODUCTORY PHARMACY PRACTICE EXPERIENCE** One credit
This course will provide introductory practice experiences to students in a variety of practice settings. This early experience is critical to the process of professional socialization which can only develop via interactions with faculty members, practitioners, peers and other health care professionals. Students will spend three hours per week in a structured, supervised learning process in an in-patient or out-patient setting. Students are responsible for transportation to and from all off-campus sites.
Prerequisite: PHA 301, PHA 302, PHA 304.
PHA 405. PHARMACEUTICAL CARE SYSTEMS: DESIGN & CONTROL  
Two credits  
Examines delivery of pharmaceutical products and services from a systems perspective in a variety of patient care settings. Focus is upon effectiveness, efficiency and quality. Covers design of systems, establishment and monitoring of key indicators, total quality management and quality assurance agencies (e.g., JCAHO, NCQA). Lecture: Two hours per week.

PHA 410. IMMUNOLOGY/BIOTECHNOLOGY  
Three credits  
A discussion of nonspecific host defense mechanisms and a detailed description of specific immunity. Products that impart artificial active and passive immunity are presented. The concept of biotechnology is discussed together with the currently available products of genetic engineering that relate to immunology. The various immunological disorders and the immunology of cancer and HIV are discussed. Lecture: Three hours per week. Prerequisite: PHA 331, 332, 365 or consent of instructor.

PHA 411. BIOPHARMACEUTICS & CLINICAL PHARMACOKINETICS  
Four credits  
The fundamentals of biopharmaceutics and pharmacokinetics are presented. The physical and chemical properties of the drug and dosage form and the impact of the route of administration and patient characteristics and disease state will be related to the absorption, distribution, metabolism and elimination in the body. Individual drugs and patient case histories will be used to familiarize the student to practice. Lecture: Three to four hours per week. Recitation: zero to three hours per week. Prerequisite: PHA 311, PHA 312 or consent of instructor.

PHA 412. MANAGEMENT OF PHARMACY OPERATIONS  
Three credits  
The principles of management, including personnel and financial management, will be covered as they apply to management of pharmacy operations in a variety of settings (e.g., community, health system, managed care). Lecture: Three hours per week. Prerequisite: PHA 308 or consent of instructor.

PHA 421, 423, 425, 426, 428, 430, 521, 523, 525, 526, 528, 530 PHARMACOTHERAPEUTICS  
A four-semester, twelve-module sequence (three modules per semester) integrates pharmacology, medicinal chemistry, pathophysiology and pharmacotherapy. This team-taught, interdisciplinary course provides students with the opportunity to learn and apply concepts from these four disciplines. Topics and associated credits are as follows: Prerequisite: PHA 310, 327, 331, 332, 365.

PHA 421. PHARMACOTHERAPEUTICS I: PRINCIPLES OF PHARMAKOLOGY & MEDICINAL CHEMISTRY  
Two credits

PHA 423. PHARMACOTHERAPEUTICS II: PRINCIPLES OF PHARMACOTHERAPEUTICS  
Two credits  
Prerequisite: PHA 421.
PHA 425. PHARMACOTHERAPEUTICS III: SELF-CARE AND DERMATOLOGY*  
Three credits

PHA 426. PHARMACOTHERAPEUTICS IV: GASTROINTESTINAL DISORDERS*  
Two credits

PHA 428. PHARMACOTHERAPEUTICS V: INFECTION DISEASES*  
Four credits

PHA 430. PHARMACOTHERAPEUTICS VI: HEMATOLOGY, JOINT DISORDERS, SURGERY*  
Two credits

PHA 521. PHARMACOTHERAPEUTICS VII: PULMONARY DISORDERS*  
Two credits

PHA 523. PHARMACOTHERAPEUTICS VIII: CARDIOVASCULAR DISORDERS*  
Four credits

PHA 525. PHARMACOTHERAPEUTICS IX: RENAL DISORDERS*  
Two credits

PHA 526. PHARMACOTHERAPEUTICS X: ENDOCRINE DISORDERS & WOMEN’S HEALTH ISSUES*  
Two credits

PHA 528. PHARMACOTHERAPEUTICS XI: NEOPLASTIC DISEASES*  
Two credits

PHA 530. PHARMACOTHERAPEUTICS XII: CENTRAL NERVOUS SYSTEM DISORDERS*  
Four credits

*PHA 423 is prerequisite to PHA 425-530.

PHA 450. NEUROPHARMACOLOGY OF DRUGS OF ABUSE  
Three credits

In-depth analysis of drugs of abuse, including pharmacokinetics, pharmacodynamics, tolerance, sensitization, physical dependence, and effects of drug use during pregnancy. Drug testing and substance abuse treatment strategies will also be discussed. Lecture: Three hours. Prerequisite: PHA 421 or consent of instructor.

PHA 452. EXTEMPORANEOUS COMPOUNDING  
Three credits

Students will achieve basic and advanced skills in compounding pharmaceutical dosage forms for individualized patient therapy to replace a lack of commercially available products, and enhance therapeutic problem-solving between the pharmacist and physician to enhance patient compliance. Students will work independently on research assignments and compounding preparations. Lecture one hour, laboratory six hours per week. Fee: $80. Prerequisites: PHA 311 and PHA 312 and permission of instructor.

PHA 454. HISTORY OF PHARMACY AND DRUG DEVELOPMENT  
Three credits

The History of Pharmacy and Drug Discovery is designed to provide the student with a
general understanding of the development of the profession of pharmacy and its interrelation-
ship with the discovery of critical therapeutic agents. This course will consider the con-
tributions of the ancient Mesopotamian, Egyptian, Chinese, Greek and Roman cultures to
the development of Pharmacy. The student will also be exposed to events that lead to the
rise of professional pharmacy in Europe during the Renaissance period. Using this as a
foundation the course will focus on the development and rise of professional pharmacy
within the United States from the 15th century to modern times. An important aspect of
this course will be discussions concerning the development of critical therapeutic agents
that revolutionized the treatment of disease and how these discoveries affected the profes-
sion of pharmacy. Aspects of the scientific process and how it has contributed to these dis-
coversies will also be discussed.

**PHA 455. INTRODUCTION TO THE MANAGEMENT OF THE COMMUNITY
PHARMACY**

Three credits

This course is designed to introduce the student to concepts needed to be a successful com-

munity pharmacist. The student will be introduced to principles in pharmacy and fiscal

management, legal issues relating to pharmacy and entrepreneurship. This course will con-

sist of lectures and projects related to pharmacy management and practice, and legislative

issues.

**PHA 457. INTRODUCTION INTO HEALTH SYSTEM PHARMACY PRACTICE**

Three credits

This course is designed to introduce the student to the practice of pharmacy within a health

system (e.g. hospital) setting. The student will be introduced to the history, management,

clinical services within, and career options in a health-system pharmacy. Furthermore, the

student will need to complete health-system site visits, a Drug-Use Evaluation (DUE), and

formulary evaluation.

Prerequisite: P-2 standing.

**PHA 503 AND PHA 504. LONGITUDINAL CARE LAB I & II**

One credit each

Students will follow a patient or patients over an extended period of time in a medical or

home setting. Pharmaceutical knowledge and skills will be applied in communications,

health assessment, monitoring of pharmacotherapy, evaluation of both humanistic and clin-
ic outcomes. Issues of health care, cost access and quality as revealed through each patient’s

interaction with health and pharmaceutical care systems will be addressed. Three hours per

week. Students are responsible for transportation to and from all off-campus experiential

sites.

Prerequisite: PHA 503 is prerequisite to PHA 504.

**PHA 505. PHARMACY LAW**

Two credits

The study of federal and state statutes, regulations and court decisions which control the

practice of pharmacy and drug distribution. Civil liability in pharmacy practice and ele-
ments of business and contract law will be covered. Lecture: Two hours per week.
PHA 509. ECONOMIC EVALUATION OF PHARMACEUTICAL PRODUCTS & SERVICES
Three credits
Introduction to commonly used economic evaluation methods (e.g., cost-minimization, cost-utility, cost-benefit, cost-effectiveness) as applied to pharmaceutical products and services. Quality of life and outcomes research will also be explored. Emphasis is on understanding evaluation methods and research design and interpreting the relevant literature for practice applications. Lecture: Three hours per week.
Prerequisite: PHA 308 and PHA 310 or consent of instructor.

PHA 510. GENERAL MEDICINE ADVANCED PHARMACY PRACTICE EXPERIENCE
Six credits
Integration of basic pharmacy related concepts to the delivery of pharmaceutical care in general medicine practice. Clinical practice: Forty hours per week for a total of six weeks.
Prerequisite: P-4 standing.

PHA 511. AMBULATORY CARE ADVANCED PHARMACY PRACTICE EXPERIENCE
Six credits
Integration of basic pharmacy related concepts to the delivery of pharmaceutical care in ambulatory care settings. Clinical practice: Forty hours per week for a total of six weeks.
Prerequisite: P-4 standing.

PHA 512. COMMUNITY ADVANCED PHARMACY PRACTICE EXPERIENCE
Six credits
Integration of basic pharmacy related concepts to the delivery of pharmaceutical care in community practice settings. Clinical practice: Forty hours per week for a total of six weeks.
Prerequisite: P-4 standing.

PHA 532. ALTERNATIVE MEDICINE AND NUTRITION
Three credits
This course gives an overview of various alternative/contemporary medicine practices; homeopathy, herbal therapy, chiropractic, acupuncture, acupressure, body massage, ayurvedic, and shamanic practices. This course will also give an overview on the concept and practice of nutrition: parenteral and enteral nutrition. Lecture: Three hours.
Prerequisite: PHA 331, 332, 365 or consent of instructor.

PHA 550. PRINCIPLES OF EXPERIMENTAL PHARMACOLOGY
Three credits
This course is designed to increase the student's appreciation of the science of pharmacology. The student will be exposed to principles and theories that are currently used to interpret pharmacological data about new drug products and physiological systems in both humans and animals. A series of articles will be used to demonstrate application of pharmacological techniques, and the student will be asked to suggest additional techniques to further clarify published hypotheses. The student will conduct experiments to apply pharmacological theories and techniques and to use the scientific method to gain data to support a hypothesis. Fee: $80.
**PHA 551. VETERINARY PRODUCTS**  
*Three credits*

Veterinary Products is designed to introduce pharmacy students to Veterinary Pharmacology and Therapeutics and the role of the pharmacist in the care of animals. The students will evaluate the most commonly used drugs in veterinary care and relate that evaluation to the use of these drugs in humans. The student will learn fundamental concepts that will allow the student to provide pharmaceutical care to animals and assist the veterinarian and owner in the care of pets and domestic animals. There will be a field trip to a zoo on one Saturday during the course. 
Prerequisites: PHA 424 and 426.

**PHA 552. PRINCIPLES OF BIOORGANIC AND MEDICINAL CHEMISTRY**  
*Three credits*

This will be an introductory course whose aims are to provide the principles of bioorganic and medical chemistry, including an understanding of drug structure-activity relationships, prediction of the physicochemical properties of a drug, basic knowledge of the major pathways of drug metabolism and factors that can contribute to drug-drug interactions. 
Prerequisites: CHEM 231-232, PHA 327, 365.

**PHA 395-396. INDEPENDENT STUDY**  
*One - Six credits*

Independent study and research for advanced students in the field of the major under the direction of a staff member. 
Prerequisites: Approval of department chairperson.

**PHA 495-496. INDEPENDENT STUDY**  
*One - Six credits*

Independent study and research for advanced students in the field of the major under the direction of a staff member. 
Prerequisites: Approval of department chairperson.

**PHA 595-596. INDEPENDENT STUDY**  
*One - Six credits*

Independent study and research for advanced students in the field of the major under the direction of a staff member. 
Prerequisites: Approval of department chairperson.

**PHA 599 A, B, C. ELECTIVE ADVANCED PHARMACY EXPERIENCE ROTATIONS**  
*Six credits*

Advanced pharmacy practice experience involved in different aspects of pharmaceutical care. (Courses to be determined.) Clinical practice 40 hours per week for a total of six weeks. 
Prerequisites: P-4 standing.
OFFICE OF GRADUATE AND CONTINUED LEARNING
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130 South River Street
FAX: (570) 408-7811

School of Pharmacy
(570) 408-4280
First Floor, Stark Learning Center
160 South River Street
FAX: (570) 408-7828

Student Services Center
(570) 408-2000
University Center on Main (UCOM)
169 South Main Street

(570) 408-4235
1-800-WILKES U, ext. 4235
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## PROGRAM CONTACTS FOR GRADUATE AND PROFESSIONAL STUDIES

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<thead>
<tr>
<th>PROGRAM</th>
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<td>Secondary Education / Biology (M.S.)</td>
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