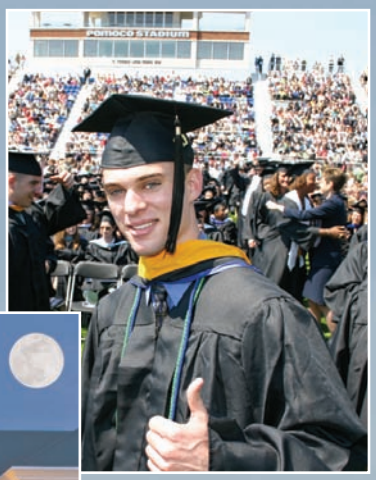
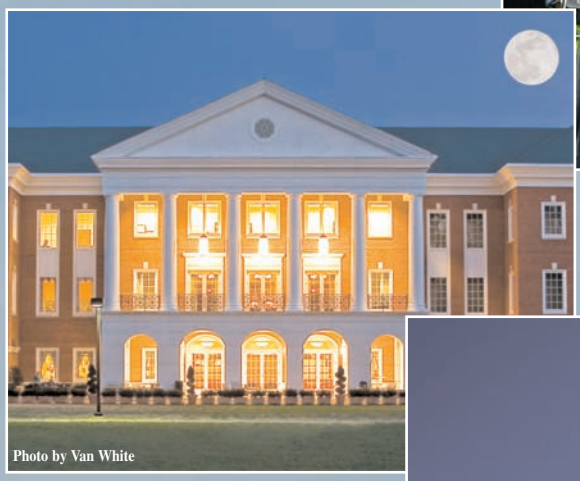
CHRISTOPHER NEWPORT
UNIVERSITY





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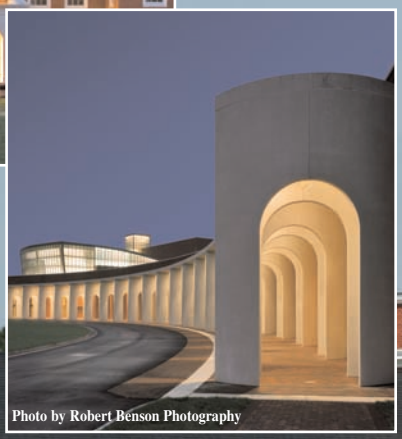

Photo by Robert Benson Photography

The new Trible Library

2008 - 2009 GRADUATE CATALOG

Photo by John Kelly

CHRISTOPHER NEWPORT
UNIVERSITY

Graduate Catalog
2008-2009

The provisions of this catalog do not constitute a contract, expressed or implied, between any applicant or student and the Rector and Board of Visitors of Christopher Newport University. The University reserves the right to change any of the provisions, schedules, programs, courses, rules, regulations, or fees whenever university authority deem it expedient to do so.

Christopher Newport University does not discriminate in admission, employment or any other activity, on the basis of race, gender, color, age, religion, veteran status, national origin, disability, sexual orientation or political affiliation. The University complies with all applicable state and federal constitutional provisions, laws and regulations concerning discrimination. Anyone having questions concerning these laws should contact the Director of Equal Opportunity.

One University Place
Office of Graduate Studies
McMurran Hall Room 101D
Newport News, VA 23606
http://gradstudies.cnu.edu/

THE UNIVERSITY HONOR SYSTEM

The reputation and credibility of an institution of higher education requires the commitment of every member of the community to uphold and to protect its academic and social integrity. As such, all members of the Christopher Newport University community uphold and enforce agree to the following:

The Honor Code:
"On my honor, I will maintain the highest standards of honesty, integrity and personal responsibility. This means I will not lie, cheat or steal, and as a member of this academic community, I am committed to creating an environment of respect and mutual trust."

Under the Honor Code of Christopher Newport University, it is expected that all members of the University community will demonstrate honesty and integrity in their conduct. Intentional acts of lying, stealing or cheating are violations of the Code that can result in sanctioning.

Each member of the University community is responsible for upholding and enforcing the Honor Code. The Honor System cannot function unless each member of the University community takes action when he or she believes that any person may have violated the Honor Code. Members of this University community are obligated to report violations to appropriate University personnel in order to ensure the efficacy of the system.

STUDENT ACADEMIC RESPONSIBILITIES

CNU is a community comprised of students who:

- Value higher education and the community of scholars;
- Understand the meaning and aims of liberal learning;
- Establish learning as their top priority;
- Take initiative to participate actively in their own learning;
- Prepare for class, and attend regularly and on time;
- Take learning seriously in thought, word, and conduct;
- Complete assignments on time and with care;
- Respect all members of the academic community;
- Follow proper procedures and lines of authority for pursuing concerns and complaints;
- Know, understand and follow the *Code of Academic Work, the University Honor Code, and the General Requirements for Graduation;*
- Take responsibility to seek help from faculty, staff, and fellow students as needed to succeed academically.

Table of Contents

Dear Students,

Welcome! Thank you for your interest in graduate study at Christopher Newport University. I am pleased that you have chosen to continue your educational and career development with us and invite you to explore the exceptional graduate opportunities we have available. We offer two outstanding Master of Science (MS) degree programs in Applied Physics and Computer Science and in Environmental Science. Additionally, we offer an excellent Master of Arts in Teaching (MAT) program, which also prepares students for teacher licensure in many areas, from Art to Elementary Education, and more. The pages that follow describe the program requirements for the MS and MAT degrees as well as policies that govern your graduate school experience.

Regardless of the program you choose, you will be taught by vibrant faculty, and you will learn alongside your colleagues in the classroom, in the field, and in research labs, providing you the knowledge and real world experiences you need to be engaged citizens of the 21st century. If you would like additional information on any of our programs, please contact our Office of Graduate Studies at (757) 594-7544 or via email at gradstdy@cnu.edu.

Again, thank you for selecting Christopher Newport University for your graduate education. We look forward to working with you and to watching you succeed.

Sincerely,

Kelly B. Cartwright

Kelly B. Cartwright, Ph.D.
Associate Provost for Academic Services
Director of Graduate Studies

Student Responsibility for Graduate Catalog Information
Graduate students are held individually responsible for the information contained in the Christopher Newport University Graduate Catalog. Failure to read and comply with University regulations will not exempt students from whatever penalties they may incur. Students beginning their programs of graduate study at Christopher Newport University should retain this catalog as a reference.

The 2008-2009 Graduate Catalog was published by the Office of University Relations at Christopher Newport University.

CHRISTOPHER NEWPORT UNIVERSITY

Christopher Newport University is the youngest comprehensive university in the Commonwealth of Virginia. However, it came into being as part of the oldest academic institution in the Commonwealth. For this reason, it has a great sense of history and a strong vision of the future. Christopher Newport College was established by the Virginia General Assembly in 1960 as a two-year branch of The College of William and Mary. It became a four-year baccalaureate degree-granting institution in 1971 and became totally independent of The College of William and Mary in 1977.

The University began offering graduate programs in July 1991; and in July 1992, was renamed Christopher Newport University. The University derives its name from Captain Christopher Newport, who was put "in sole charge and command" of the squadron of three ships that landed at Jamestown in 1607. He was among the most important men connected with the permanent settling of Virginia.

Mission of Christopher Newport University

The mission of Christopher Newport University is to provide educational and cultural opportunities that benefit CNU students, the residents of the Commonwealth of Virginia and the nation. CNU provides outstanding academic programs, encourages service and leadership within the community, and provides opportunities for student involvement in nationally and regionally recognized research and arts programs.

Our primary focus is excellence in teaching, inspired by sound scholarship. At CNU, personal attention in small classes creates a student-centered environment where creativity and excellence can flourish. Our primary emphasis is to provide outstanding undergraduate education. We also serve the Commonwealth with Master's degree programs that provide intellectual and professional development for graduate-level students.

We are committed to providing a liberal arts education that stimulates intellectual inquiry and fosters social and civic values. CNU students acquire the qualities of mind and spirit that prepare them to lead lives with meaning and purpose. As a state university we are committed to service that shapes the economic, civic and cultural life of our community and Commonwealth.

Mission of Graduate Studies

The graduate programs at Christopher Newport University offer degrees at the master's level for the educational and professional enhancement and enrichment of students and in response to the needs of the CNU community. Graduate study at CNU requires students to extend their knowledge and intellectual maturity to a level of complexity and sophistication well beyond that of undergraduate education. Graduate students are required not only to gain an understanding of the subject matter and the nature of research in their discipline but, also to engage in their own research projects. The goal of this activity is to give the master's degree recipient greater ability to practice in and contribute to a profession or field of scholarship.

Graduate faculty members are active scholars in their fields, who are recognized as productively engaged in their professions. As such, these faculty members serve as models for graduate students and provide for them an appropriate level of knowledge and research expertise. CNU's graduate programs are committed to teaching and scholarship of high quality and to the availability of faculty members to students.

Organization of the University

The academic areas of the University are organized into the College of Liberal Arts and Sciences and the Joseph W. Luter, III College of Business and Leadership, each administered by a dean. Individual graduate faculty members are responsible to the college deans, the Associate Provost for Academic Services and the Provost in all matters pertaining to instruction. The graduate program is administered by the Associate Provost for Academic Services who also serves as the Director of Graduate Studies. Instruction and research are carried out by the graduate faculty.

The University derives its financial support from the Virginia General Assembly and from tuition and fees paid by students. The Christopher Newport University Board of Visitors, appointed by the Governor of Virginia, directs the affairs of the University. The President of the University, appointed by the Board of Visitors, is the delegated authority over the administration and the courses of instruction.

Organization of the Academic Year

The University year is divided into two semesters, August to December (fall semester) and January to May (spring semester) and three summer sessions. Graduate students may be admitted to the University for full or part-time study beginning the fall or spring semesters, or prior to any summer session. The Teacher Preparation Program admits students for spring semester and summer sessions only.

Accreditation

Christopher Newport University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097 telephone number (404) 679-4501) to award degrees at the baccalaureate and master's degree levels.

Location

The University is located in suburban Newport News, midway between Williamsburg and Norfolk. Air service is available at the nearby Newport News/Williamsburg International Airport and at the Norfolk International Airport.

Student Services

The University's student services and facilities are available to all students and are described fully in the *2008-2009 Christopher Newport University Undergraduate Catalog* and at http://studentlife.cnu.edu/. A few of the services are described on the following pages.

Information Technology Services

Christopher Newport University has made a commitment to provide a strong information technology infrastructure to enhance the teaching and learning environment of the university. A gigabit Ethernet network electronically links all parts of the campus to the worldwide network of educational and research institutions. All students may obtain accounts on the university academic server. With these accounts, students can obtain access to the internet, electronic mail, web hosting services and many other services to support the education process.

Internet Services

The University maintains a 155 megabit full-duplex connection to the internet, allowing for high-speed access to the internet from all campus facilities including residence halls.

Central Computing Systems

CNU operates from several primary servers: a Sunfire V1280 and Sunfire v480s. These systems can be accessed from all networked machines on campus as well as through the internet to gain access to the MyCNU portal, email, calendaring, online registration, the WebCT online course support system, and other services.

Open PC Labs/Classrooms

Personal computer labs are maintained at a variety of locations on campus including McMurran Hall, Ratcliffe Hall, and Gosnold Hall. These PCs run Microsoft Windows operating systems and provide a variety of application software including web browsers and Microsoft Office products.

Wireless

Information Technology Services is in the midst of a significant expansion in wireless capabilities for the CNU campus. Common areas in campus residences, the academic and residential quads, and the new David Student Union and the new Trible Library now have wireless access points.

Questions concerning these services should be addressed to Dr. George R. Webb, Chief Information Officer, McMurran Hall, Room 119, by phone (757) 594-7180.

Office of Career Development

The Office of Career Development provides services which assist students and alumni to achieve their career goals. The office provides career counseling for those concerned about choosing a major and/or career direction. Helpful online assessments and evaluations of assessments by a career counselor are provided along with additional information and resources for further career exploration. Students are assisted with internship and employment searches and can utilize an online resume referral service along with on campus recruitment opportunities to become connected with employers. The office also coordinates an annual spring career fair on campus where students learn about employment and internship opportunities and provide resumes to employers. This event is an excellent way to develop knowledge about careers and companies and increase networking resources. The staff also assist students who are considering or planning to apply for graduate school to explore options and help prepare students for the application process.

Career Counseling Services:

Career and Majors Counseling/Exploration
Interest and Personality Type Assessment
Computer-Assisted Career Guidance Services (FOCUS)
Printed materials providing career information
Various career related web site links through ocd.cnu.edu

Employment and Internship Support Services:

Job and internship vacancy information on database
Volunteer opportunities
Job search skills development
Internet job search resources
Annual Spring Career Fair
Resume and cover letter writing assistance
Interview skills assistance
On-Campus Recruitment-information tables, information sessions and on campus interviews
Resume Referral Service

Graduate School Planning:

Graduate school related resources
Graduate school examination preparation courses
Annual fall Graduate School Fair

Assistance for CNU Alumni:

Career related assistance provided at no cost
Appointments provided on campus or via phone
Access to employer database, resume referral service and recruitment events

Questions concerning these services should be addressed to Lisa Burris, M.A., NCC, Director, David Student Union 3100, or by email ocd@cnu.edu or by phone (757) 594-8887.

Office of Counseling Services

The Office of Counseling Services provides a wide range of free professional services to help students succeed at the University by creating a safe, confidential and supportive environment in which personal development can occur. Counseling services assist students with self-knowledge, facing challenges, confronting short-term personal issues, and through crisis intervention. All of the services contribute to helping students learn new skills, enhance personal success, set and achieve goals and get the very best out of life. Additionally, the office supports CNU faculty, staff, clubs and organizations parents and the community through consulting and educational outreach services.

Students are referred to resources outside the University when long-term counseling or other professional support is needed. Students are ultimately responsible for their decisions and actions and must assume responsibility for their personal choices. Using Counseling Services wisely will assist student's adjustment to the University and can help develop skills they will need to meet the various challenges a student may encounter. Listed below are many of the services offered through the Office of Counseling Services.

Counseling Services:

Individual Counseling
Crisis Intervention
Relationship Counseling
Support Groups
Group Seminars and Workshops
Self-help Pamphlets
Referral Services

Consulting Services:

Life/Personal Coaching
Participation in the Faculty Early Alert System
Myers-Briggs Type Indicator Presentations
Faculty/Staff Training
Educational Outreach:
Classroom presentations suitable to faculty needs
Residence Life presentations
Programming for clubs and organizations
Awareness Weeks
Community talks and workshops

Questions concerning these services should be addressed to Dr. Bill Ritchey, Psy.D, Director, 72 Shoe Lane,or by email cccc@cnu.edu or by phone (757) 594-7047.

Services for Students with Disabilities

CNU provides reasonable accommodations to make education accessible to students with disabilities. The Office of Disability Services assists students with disabilities by understanding the individual student's particular strengths and needs and providing support to help the student achieve academic goals. The aim of the Office of Disability Services is to provide students with disabilities equal access to the programs, opportunities and benefits of the University. Students with disabilities may consult with the Coordinator before or during their active enrollment at CNU. New students will want to contact the Coordinator well before beginning their first semester, if special services will be required. While consultation with the Coordinator is always available, students who request accommodation by the University must formally declare their disability by completing a form available at: http://advise.cnu.edu/dss.htm.

In order to determine needs and provide the best services possible, students are asked to provide recent documentation concerning their disability. Such documentation should include the student's disability and suggestions for possible accommodation to enhance access and/or success in the programs and activities of the

University. Documentation should be provided in writing from a qualified professional and mailed to:

Coordinator for Students with Disabilities
Christopher Newport University
1 University Place
Newport News, VA 23606-2998

Evaluation information concerning a student's disability is private. Such information will be provided to instructional or staff members only when they have a legitimate "need to know," and only then with the student's permission. Questions concerning reasonable accommodation of a student's disability or handicap should be directed to the Coordinator by mail, or by calling (757) 594-8763, TDD: (757) 594-7938, or TDD: (800) 828-1120, the Virginia Relay Center.

University Health and Wellness Services

University Health and Wellness Services (UHWS) is a health-care partnership between CNU and Riverside Business Health Services. UHWS, through a contractual arrangement with Riverside, offers many services to support healthy living as well as helping students learn to take responsibility for their own wellness. Its main objective supports the CNU mission of education of mind, body and soul through teaching a diverse student population how to assess their own health status, access medical resources, know their rights and responsibilities as patients, and become informed medical consumers. Professional support services are available to assist all graduate and undergraduate students when they become sick or injured.

Free Clinic Services:

On site Registered Nurse for nursing triage
First aid
Blood pressure monitoring
Assistance in finding local physicians, dentists, psychologists, psychiatrists and other medical resources
UHWS Website: http://studentclinic.cnu.edu/
Clinic Services Requiring a Fee:
All physicals and visits with the Nurse Practitioner-(by appointment only)
Lab Tests
Immunizations and injections
Tuberculosis Screens and TB testing
Flu shots
Stitch and staple removal

Free Health and Wellness Education Opportunities:

Health and Wellness Fair
Educational materials and resources

Nutrition and fitness counseling

CNU Quit - a smoking cessation program
Quit Kits - for people who want to stop their tobacco use
Health screenings
Campus outreach programs on various health and wellness topics

Questions concerning these services should be addressed to Ms. Rita Cenname, BSN, RN, BC, Clinic Supervisor, First floor, James River Hall, or by email uhws@cnu.edu, or by phone (757) 594-7661.

Paul and Rosemary Trible Library

The Paul and Rosemary Trible Library is the intellectual center of Christopher Newport University. The library staff helps students develop research skills relating to their curriculum and builds a collection which supports and enhances the essential elements of the university curriculum and our students' personal development. Students find collections geared to their areas of study, as well as broader collections supporting the intellectual and personal growth so essential to a core of liberal arts studies.

Opened in spring 2008, the Trible Library doubles the size of the previous Smith Library. The Trible Library combines the best of a traditional library with a state-of-the-art technology center to create an interactive learning experience for the 21st century. Significantly enhanced and enlarged study areas offer students a wide variety of environments for study and intellectual activity. Students can choose from group study rooms, two large quiet study rooms, wireless café, and a 24/7 secured study environment to meet their academic needs. Access to the Internet and the electronic collection is available throughout the building through wireless connections, and books and media are readily available through an open stacks arrangement. The Trible Library is the intellectual center of the University, both in it's content and architecture.

Trible Library houses 218,000 volumes and 1,551 periodical titles. Eight professional librarians and ten library assistants provide students and faculty easy access to its resources and services. The Library's web page: (http://library.cnu.edu/) connects students to the library's electronic and Internet resources and services as well as keeps them informed on events happening in the library.

Reference

Trible Library offers professional reference services to provide aid with student information needs. It houses a reference collection of over 9,100 volumes, plus an extensive online collection. Special services are offered through reference, including individualized consultation on term papers and research projects.

Through its instruction programs, Trible Library seeks to provide basic orientation in the use of the library and to teach students to deal critically with information. As students increasingly use the Internet to find research information, an ability to analyze information becomes a vital skill in the development of an informed citizen.

Internet Services

Trible Library provides access to numerous Internet services, including ProQuest, Infotrac, and JSTOR. It has access to over many bibliographic and full-text databases in the areas of science, business, law, economics, the social sciences, and the humanities. The library is one of the founding members of VIVA, the Virtual Library of Virginia. VIVA is a consortium of 39 academic libraries which facilitates the sharing of library collections and electronic resources throughout the Commonwealth of Virginia.

Interlibrary Loan

If materials needed for research are not located in Trible Library, they may be requested through Interlibrary Loan. The library uses one of the major library networks, OCLC, to process interlibrary loans

Policies and Procedures

Admission to Graduate Studies

Christopher Newport University admits graduate students whose ability and preparation indicate potential for success. Admission to graduate study is competitive and based upon a careful review of each applicant's academic and professional qualifications. CNU is an equal opportunity, coeducational university, and admission is not based on race, gender, color, age, religion, veteran status, national origin, disability or political affiliation.

Graduate Academic Policies

Students are responsible for the proper completion of their academic programs. Students must be familiar with the information contained in the *CNU Graduate Catalog* and must satisfy the requirements established by both the University and the specific master's degree program. The graduate program is administered by the Director of Graduate Studies. Instruction and research are carried out by the graduate faculty. The Provost has final responsibility in all matters pertaining to instruction.

Tuition and Fees

Tuition and fee rates are established each year by the Rector and Christopher Newport University Board of Visitors. Current fees can be found on the CNU Business Office website at: http://businessoffice.cnu.edu/.

Financial Aid

Financial aid consists of scholarships, grants, graduate assistantships, loans and employment opportunities that are available to help students finance their education. Most financial aid resources serve to supplement, rather than replace, family resources.

Admission to Graduate Studies

The decision to admit an applicant to graduate studies at Christopher Newport University is determined by the graduate faculty members in the appropriate academic department(s). Graduate Admissions collects the application materials and submits the complete application packet with all required documentation to the Office of Graduate Studies (OGS) for distribution to the appropriate Graduate Program Coordinator (GPC). The decision is made by the GPC and the graduate faculty members in his/her department and returned to the OGS. A letter is sent to the applicant.

Applicants must read the information regarding the master's degree program to which they are applying for specific admission and academic requirements. Students may be admitted to the University for full or part-time study beginning the fall or spring semesters or prior to any summer session. Applicants are encouraged to apply and submit all documents well in advance of the term in which they wish to attend.

ADMISSION REQUIREMENTS

Application and Fees

Applicants must submit a completed ***Application for Admission to Graduate Study***, an ***Application for Virginia In-State Tuition Rates***, (if applying for in-state tuition rate eligibility), and the appropriate **non-refundable application fee.** The ***Application for Admission to Graduate Study*** and the ***Application for Virginia In-State Tuition Rates*** are submitted from http://gradstudies.cnu.edu/application/gradapp.html. International students must submit the ***Graduate Application for International Students.*** Refer to page 15 of this catalog for specific requirements. The ***Application for Admission to the Five-Year Program*** is distributed by the Graduate Program Coordinators.

College Records

Applicants must submit an **official transcript of their baccalaureate degree from a regionally accredited college or university**. The transcript must indicate the date of the applicant's graduation, the degree received, and a complete list of courses taken and grades received.

Applicants also must submit **official transcripts of graduate work** taken at other institutions.

Grade Point Average

Degree-seeking and non-degree applicants must have a baccalaureate degree from a regionally accredited college or university **with a minimum grade point average (GPA) of 3.00 on a 4.00 scale**. Those applying to the Licensure Only program apply in a non-degree status and must have a baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 2.70 on a 4.00 scale.

Educational and Professional References

Degree-seeking applicants must provide **three letters of recommendation** written by persons qualified to judge the applicant's potential to complete the graduate program successfully. The recommendation form may be obtained from the Office of Graduate Studies website (http://gradstudies.cnu.edu/recommendation.pdf). All recommendations must be received by CNU in unopened envelopes with the reference's signature across the envelope flap. Refer to the master's degree program section for any specific reference requirements.

Entrance Examinations

Examination scores are used as one of several indicators of the applicant's ability to succeed in graduate studies. The **Graduate Record Examination** and **PRAXIS I** are offered on an individually scheduled basis through the Prometric Testing Center: www.prometric.com . Refer to the master's degree program section for specific examination requirements.

Application Deadlines

Degree-seeking Students

Deadlines for Application and All Supporting Documents/Materials

Fall Admission	**August 15**	for **M.S. APCS** and **M.S. ENVS** Applicants Only The MAT Program only admits applicants in Spring and Summer.
Spring Admission	**October 15**	for **MAT** Applicants
	November 1	for **M.S. APCS** and **M.S. ENVS** Applicants
Summer Admission	**March 15**	for **M.S. APCS**, **M.S. ENVS**, and **MAT** Applicants All supporting documents must be received by March 15 for applicants to be considered for Summer graduate admission.

Applications cannot be processed until the application fee and all documents have been received.
After these deadlines, applicants may apply to enter as non-degree students.

International Students

Deadlines for Application and All Supporting Documents/Materials

Fall Admission	**April 1**
Spring Admission	**October 1**
Summer Admission	**March 1**

Applications cannot be processed until the application fee and all documents have been received.

Five-year Program Students

Deadlines for Application and All Supporting Documents/Material

February 1st of the junior year.

Submission of Application Materials

All application materials are to be submitted to:

CNU Graduate Admissions
One University Place
McMurran Hall Room 101C
Newport News, VA 23606-2998

or submitted electronically from: http://gradstudies.cnu.edu/application/gradapp.html

- **To determine the status of your application package**, you may e-mail **gradques@cnu.edu.**
- **Applications cannot be processed until the application fee and all documents have been received.**
- **A decision letter** can be expected approximately three weeks after the complete application package is submitted to the appropriate Graduate Program Coordinator for evaluation.

Reactivated Applications

Students who were accepted as degree-seeking but did not enroll may reactivate their applications within a period of two semesters of the original application. After that period of time, the complete set of application materials must be re-submitted along with a new application fee.

ADMISSION STATUS

DEGREE-SEEKING STATUS

Applicants approved to participate in a graduate program leading to a master's degree will be admitted as degree-seeking students. Upon acceptance, a degree-seeking student will be assigned a graduate faculty advisor to assist the student in formulating their academic plan of study.

Students planning to use financial aid must be admitted in degree-seeking status.

Admission Requirements for Degree-seeking Status

- Completed ***Application for Admission to Graduate Study***
- **$45 Non-refundable Degree-seeking Application Fee**
- Completed ***Application for Virginia In-State Tuition Rates*** if applying for in-state tuition rate eligibility
- **Official baccalaureate transcript** from a regionally accredited college or university, indicating the successful completion of all degree requirements and listing all courses taken with grades received.
- **Minimum grade point average of 3.0 on a 4.0 scale**
- **Official transcripts for other graduate work** are required
- **Three letters of recommendation.** The recommendation form may be obtained from the Office of Graduate Studies website (http://gradstudies.cnu.edu/recommendation.pdf).
- **GRE or PRAXIS I** examination scores
- Refer to the master's degree program section for specific or additional admission requirements such as an essay.

NON-DEGREE STATUS

Applicants approved to take graduate courses apart from any program leading to a graduate degree may be admitted as non-degree students. Such students earn academic credit in the same manner as degree-seeking students, and prerequisites for individual courses must be met unless excused by the Graduate Program Coordinator. Credit received as a non-degree graduate student may be applied to a graduate degree if and when the student becomes a degree-seeking graduate student. A maximum of 12 credits may be earned while in non-degree-status with the exception of those earning certificates within one of the graduate programs.

Admission Requirements for Non-degree Status

- Completed ***Application for Admission to Graduate Study***
- **$35 Non-refundable Application Fee**
- Completed ***Application for Virginia In-State Tuition Rates*** if applying for in-state tuition rate eligibility
- **Official baccalaureate transcript** from a regionally accredited college or university, indicating the successful completion of all degree requirements and listing all courses taken with grades received.
- **Minimum grade point average of 3.0 on a 4.0 scale**
- **Official transcripts for other graduate work** are required
- Letters of recommendation and examination scores are not required for the non-degree applicant.

Changing from Non-degree to Degree-seeking Status

In order to petition for the change in status a non-degree student must submit to Graduate Admissions the ***Request for Status Change to Degree-seeking Status*** form, the **non-refundable Degree-seeking Application Fee of $45.00** and **all required documentation** for degree-seeking status within a specific master's degree program. In addition, the non-degree student must present his/her CNU transcript and meet the following criteria for the specific master's degree program:

MAT completion of 12 hours of MAT graduate courses with a cumulative 3.5 GPA or above

M.S. completion of 12 hours of CNU graduate credits with a minimum cumulative 3.0 GPA, a status of Good Academic Standing, and submission of passing scores from the Graduate Record Exam

The amount of credit received as a non-degree student which is applicable toward a graduate degree will be determined by the appropriate Graduate Program Coordinator at the time the student changes to degree-seeking status.

Teachers in the Commonwealth of Virginia Applying for Graduate Non-degree Status

Any regular or provisionally licensed Virginia teacher who desires to enroll in a graduate course for **re-licensure** or **continued professional development** does so in a graduate non-degree status. This status allows a teacher to take any graduate (500 - 600 level) course at the University, as long as the prerequisites have been met. Graduate classes will be posted on a graduate transcript with the grades and associated graduate credit hours earned.

Admission Requirements for Virginia Teachers in Non-degree Graduate Status

- Completed ***Application for Admission to Graduate Study***
- **$35 Non-refundable Application Fee**
- Completed ***Application for Virginia In-State Tuition Rates***
- A **transcript** must be submitted verifying the baccalaureate degree was completed with a cumulative GPA of 3.0 or higher. (A copy of the transcript is acceptable.*)

* Transcripts may be presented to any of the following:
  Lyn Sawyer, M.Ed., Associate Director of Graduate Admissions & Records, McMurran Hall 101D
  Dr. Marsha Sprague, MAT Graduate Program Coordinator, Ratcliffe Hall 124

INTERNATIONAL STUDENTS

Students from other countries with adequate preparation for graduate study are invited to apply for admission to Christopher Newport University. The University is authorized under federal law to enroll non-immigrant alien. Deadlines for the application with all supporting documents/materials for international students are: **April 1** for fall semester,
October 1 for spring semester, and
March 1 for summer sessions.

Applications cannot be processed until the application fee and all documents have been received.

Because the University is a state-supported institution, it cannot provide financial aid to international students.

Admission Requirements for International Students

An international student must apply as Degree-Seeking by submitting the specific master's degree program admissions documents. An international applicant who is not a U.S. citizen is required to:

1. Submit a ***Graduate Application for International Students*** with the required non-refundable **$45.00 application fee.** The application is found at http://gradstudies.cnu.edu/application/gradapp.html .
2. Submit all documents required for degree-seeking admission to the specific master's degree program. Refer to the master's degree program section in this catalog.
3. Submit an official transcript of his or her baccalaureate degree, translated into English and submit official transcripts of graduate work, translated into English.
4. Submit official transcripts translated into English to the World Education Services and submit the WES transcript evaluation to the Graduate Admissions. See **Evaluation of International Credits** section below for contact information.
5. Submit a minimum score of 92 for the Internet-based TOEFL, or an equivalent score of 237 on the computer-based Test of English as a Foreign Language (TOEFL) or an equivalent score of 580 on the paper-based TOEFL.
6. Complete a financial resource statement and provide an official bank affidavit guaranteeing that adequate funds are available for university study prior to coming to the United States.

Evaluation of International Credits

International students must submit official transcripts translated into English to **World Education Services (WES**) to have their education credentials evaluated. WES will prepare an objective, analytical report that describes the credentials and interprets them in terms of their U.S. equivalents. Access the web site at **http://www.wes.org**, or email **info@wes.org,** or call **1-800-937-3895.**

CONTACT INFORMATION

Office of Graduate Studies is located in **McMurran Hall Room 101D** and may be contacted at **gradstdy@cnu.edu** or at **(757) 594-7544**.

Graduate Admissions is located in **McMurran Hall Room 101C** and may be contacted at **gradques@cnu.edu** or at **(757) 594-7297**.

All application supporting documents/materials are to be submitted to:
CNU Graduate Admissions
One University Place
McMurran Hall Room 101C
Newport News, VA 23606-2998

To determine the status of your application package, contact **gradques@cnu.edu.**

Applications cannot be processed until the application fee and all documents have been received.

A decision letter can be expected approximately three weeks after the complete application package is submitted to the appropriate Graduate Program Coordinator for evaluation.

Graduate Academic Policies

These academic policies apply to all students who register for graduate studies at Christopher Newport University. Students are held individually responsible for the information contained in this catalog. Failure to read and comply with University regulations will not exempt a student from any consequences or penalties.

IMMUNIZATION REQUIREMENT

In an effort to provide a healthy environment in which to live and learn, CNU has created an immunization policy that incorporates the guideline for immunizations set forth in the Code of Virginia, Section 23-7.5. Students may have received these immunizations as a child or later in life. **All entering full time students must provide a completed *Certificate of Immunization*, which must be signed or stamped by a licensed health care professional**. Failure to do so will result in the student's inability to register for and attend the next semester at CNU. The ***Certificate of Immunization*** form is required of all new students when they are admitted to the University. Copies may be obtained from the Office of the Registrar website (http://registrar.cnu.edu/) or from the Office of the Registrar, Room 205 Administration Building, Christopher Newport University, One University Place, Newport News, VA 23606-2998.

REGISTRATION

The University's registration system is a web-based registration procedure. Dates and times for registration are published prior to each semester (Fall, Spring and Summer) and are available at the Office of the Registrar website (http://registrar.cnu.edu/). A student must be admitted as a graduate student to receive graduate credit.

Students who register during the published registration periods will have their bill for tuition and fees posted online and accessible through their CNU Live account. The balance must be paid by the deadline denoted on the billing statement and announced on the CNU Business Office website (http://businessoffice.cnu.edu/). Students are not considered officially registered until tuition and fee payments have been made with the Business Office. The University reserves the right to cancel registrations if bills are not paid.

Newly admitted students are expected to meet with their graduate academic advisor prior to registration to discuss class scheduling,and are expected to attend the orientation programs when scheduled by their respective Graduate Program Coordinators.

Students who have not registered/nor attended for two consecutive regular semesters (Fall and Spring) will become inactive. **Inactive students who wish to register must seek readmission to the University.**

Schedule Adjustment (Add/Drop)

After registering for classes, students may make changes to their class schedules via the 'CNU Live' tab within their 'my cnu' account during published Schedule Adjustment periods. Course changes must be made in this manner to be recognized by the University. Schedule changes are processed in the Office of the Registrar during published schedule adjustment periods on the Office of the Registrar Registration Information website (http://registrar.cnu.edu/reginfo.html). Courses dropped during the Schedule Adjustment period do not become part of the student's permanent academic record.

Withdrawal from a Course

If serious and unforeseen circumstances arise, a graduate student may petition the course instructor to withdraw from a course in progress by completing a ***Withdrawal from Course*** form obtained in the Office of the Registrar or available on the Office of the Registrar's website. The course instructor will determine whether the request will be allowed. The ***Withdrawal from Course*** form must be signed by the instructor. A student who withdraws from a course during the withdrawal period, after receiving permission, will receive a grade of ***W***. A student who withdraws from a course without receiving permission will receive a grade *of* ***F.*** Course withdrawal periods are published on the Office of the Registrar's website and in the academic calendar.

Medical/Administrative Withdrawal

Students who wish to withdraw from the semester for medical reasons (medical withdrawal) must complete a ***Withdrawal from Semester Form*** and submit a letter to the Director of Graduate Studies outlining justification for the request. In addition, the student must provide a written statement on official letterhead from his/her physician certifying that the student is incapable of completing the academic work for the semester due to medical reasons. After the Director of Graduate Studies reviews the request, the student will be notified in writing of the decision.

In other circumstances requiring the student to withdraw from the semester, the student must complete a ***Withdrawal from Semester Form*** and submit a letter outlining the extenuating circumstances along with justification for an administrative withdrawal. The form and documentation must be submitted to the Director of Graduate Studies, who must approve the request.

If the petition for medical or administrative withdrawal is approved all grades for the semester in question will be noted as ***M*** on the student's transcript. Students may not exercise the medical or administrative withdrawal option to withdraw from individual courses.

Withdrawal from the University

Withdrawal from the University means that the student ceases to attend all classes and is no longer enrolled in the University. Students desiring to withdraw from the University should do so by submitting a written statement to the Director of Graduate Studies and to the Registrar. Unless withdrawals are made in this manner, they have no official standing and will not be recognized as valid by the University. Students may withdraw from the University prior to the final examination period.

Auditing a Course

Students may audit a course with approval of their academic advisor if class size permits. Students auditing courses are subject to attendance regulations specified by the instructor but are not required to take tests or final examinations. Students may complete any of the required assignments by permission of the instructor. Students auditing a course will receive ***AU*** rather than a letter grade. Tuition and fees for auditing a course are the same as the tuition and fees for taking a course for credit.

Changes from audit to credit status and credit to audit status may be made only during published schedule adjustment periods. Out-of-state students must make financial arrangements with the Business Office before such a change is effective. If a student registers as an auditor but fails to comply with the instructor's attendance regulations, the instructor may direct that the notation ***W*** be posted to their permanent academic record rather than ***AU***.

Independent Study

The purpose of independent study is to enable qualified students to enrich their programs through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages and grading procedures are agreed upon in writing by the student and the faculty member directing the Independent Study. This should be accomplished by the end of the early registration period for the semester or session in which the Independent Study is to occur. Students may take a maximum of three credit hours of independent study in a given semester or session, and a maximum of six credit hours in their total academic program.

The ***Independent Study Authorization Form*** is available at the Office of Graduate Studies website (http://gradstudies.cnu.edu/forms.html). It must be completed by the student and the faculty member directing the Independent Study. Within five days of being signed by both parties, the ***Independent Study Authorization Form*** must be submitted to the appropriate Graduate Program Coordinator and the chair of the department. The student must submit the completed, approved form to the Office of Graduate Studies in order to be eligible to enroll in the independent study. The student must then present the approved form to the Office of the Registrar at the time of registration.

Class Attendance

The University expects that students will regularly attend all of their scheduled classes. An educational system based largely upon classroom instruction and analytical discussion depends upon the faithful attendance of all students. The University does not, however, establish specific attendance policies. These are established at the discretion of the individual schools, departments, and/or instructors. Students with exces-

sive absences will receive a grade of ***F*** upon the instructor's recommendation. If excessive absences are caused by an extreme emergency and the instructor penalizes the student, the student may appeal the grade through the Grade Appeal Policy (see ***Student Handbook***).

Other regulations are:

1) Missing a class meeting does not in any way lessen the student's responsibility for that part of the course that has been missed.
2) Instructors may differentiate between excused and unexcused absences and authorize makeup work when appropriate.
3) Students who miss classes to represent the University must notify the class instructors in advance of those absences. Given prior notice, instructors will allow students to make up work or complete work in advance of the class absence. In cases of disagreement about whether or not the activity represents the University, the Director of Graduate Studies will make the determination.
4) Student who receive federal financial aid and who discontinue class attendance without formally withdrawing from the course(s) may jeopardize current and/or future financial aid awards. The student should contact the Office of Financial Aid for more information.

Final Examinations

The examinations take place at times announced on the examination schedule published on the Office of the Registrar website. Students are required to take all announced final examinations at the times scheduled unless excused as noted in the **Absence From Final Examinations** section. The University does not authorize re-examination, nor will changes be permitted unless the student has examinations scheduled in four consecutive periods. If a student is forced by conflict to request a change, the request must be made to the Director of Graduate Studies through the Graduate Program Coordinator or professor.

Absence from Final Examinations

Students may request to be excused from taking an examination at the scheduled time by presenting an acceptable reason for the expected absence to the professor before the examination. An excuse on the grounds of illness will be accepted when verified by a physician and received by the Office of Graduate Studies. The professor should be notified as soon as possible if illness or other emergency causes a student to be absent from an examination. If the professor cannot be notified, the student must notify the Office of Graduate Studies at **gradstdy@cnu.edu** or **594-7544** as soon as possible.

ACADEMIC STANDARDS

Course Numbering

Courses numbered 500 through 699 may be applied to a graduate degree. Courses numbered 400/500 may be taken at either an undergraduate or graduate level. Additional work and/or a higher standard will be required for those taking a course at the 500 level. **A student who has taken a course numbered 400/500 as a 400 level course may not retake it as a 500 level course**.

The three hyphenated numbers enclosed in parentheses following the title of the course, (4-3-4) for example, have the following meanings: the first number refers to the number of credit hours awarded for successful completion of the course; the second number refers to the number of weekly lecture hours in the course; and the third number refers to the number of weekly laboratory or practicum hours in the course.

Grade Point Average

Two grade point averages (GPAs) are maintained. The "cumulative GPA" is the total number of grade points earned (for CNU courses and all transferred courses) divided by the total number of credit hours attempted (CNU and all transferred hours). The "CNU GPA" is the total number of grade points earned for CNU courses divided by the total number of credit hours attempted at CNU. Effective Fall 2002 transfer credit is no longer included in grade points and credit hours attempted, resulting in one GPA. However, transfer credit is included in credit hours earned towards a degree.

Grading System

Letter Grade	Meaning	Numerical Value
A	Excellent	4.00
A-		3.70

Letter Grade	Meaning	Numerical Value
B+		3.30
B	Good	3.00
B-		2.70
C+		2.30
C	Passing (Poor)	2.00
C-		1.70
F	Failing	0.00
I	Incomplete	
W	Withdrew	
S	Satisfactory (for thesis in progress)	
U	Unsatisfactory (for thesis in progress)	
AU	Audit	

Incomplete Grade

The grade of Incomplete, ***I***, is a temporary grade that the instructor may assign when exceptional, documented circumstances prevent the student from completing required assignments or from taking the final examination.

If the grade of Incomplete is assigned, the student must complete the work and the professor must submit the grade before the end of the 4th week of the next regular semester. If a ***Grade Change Form*** is not submitted by the deadline to the Office of the Registrar, the grade of ***I*** automatically will be converted to a grade of ***F***. The change of grade deadlines are:

- If the grade of Incomplete is given in the Fall, it must be removed by no later than 5:00 p.m. on Friday of the 4th week of the following Spring semester.
- If the grade of Incomplete is given in the Spring, it must be removed by no later than 5:00 p.m. on Friday of the 4th week of the following Fall semester.
- If the grade of Incomplete is given in the Summer, it must be removed by no later than 5:00 p.m. on Friday of the 4th week of the following Fall semester.

Extensions of the Incomplete Grade(s) will require the approval of the Director of Graduate Studies.

Grade of Satisfactory/Unsatisfactory

A grade of Satisfactory (***S***) or Unsatisfactory (***U***) will be given for thesis credit while the thesis is in progress. After the thesis has been written, defended and accepted, the thesis advisor will replace the ***S*** and/or ***U*** designation with a grade of numerical value. Until that time, the ***S*** or ***U*** designation assigned for thesis work in progress will not affect the student's grade point average. Thesis credit beyond the minimum required by the program will remain with an ***S*** and/or ***U*** designation.

Grades For Repeated Courses

For courses that are repeated, only the grade, credit, and grade points for the most recent course enrollment will be counted toward graduation requirements and included in the computation of grade point averages. Any course taken at CNU in which a grade is earned may be repeated no more than twice (total of three enrollments). Courses completed at CNU with a grade of ***C*** or ***F*** cannot be repeated at another institution for transfer credit to CNU. Students who, after their third attempt, do not successfully complete a course required for a specific degree at CNU will not be allowed to graduate with that degree.

Final Grade Reports

Students may access their final grade reports by accessing their Web-based 'my cnu' account and clicking on the 'CNU Live' tab. Final grades are available at the end of each semester and summer terms.

Permission to Take Classes Elsewhere

Admitted students are expected to complete all of their course work in residence. In those unique situations when a student seeks to enroll in credit courses at another institution concurrently, **the student must obtain advance approval from the University**. Students must complete a ***Request to Take Graduate Course Elsewhere*** form, available on the CNU Graduate Studies website (http://gradstudies.cnu.edu/). The University grants students permission to take courses for credit at other institutions only when such action is academically necessary to meet scheduling requirements of their programs that cannot be met in residence at CNU.

Transfer credits for courses taken elsewhere will be granted only if the student has prior written approval and earns a grade of *B-* or better. Pass/fail grades are not accepted for transfer credit. A graduate student is limited to a **maximum of 6 credit hours that may be transferred** into the University.

Degree-seeking students who are on Academic Probation or Academic Suspension will not be approved to take courses elsewhere without written permission from their Graduate Program Coordinator and the Director of Graduate Studies. Credit hours earned elsewhere while on probation or suspension will not be accepted for credit by Christopher Newport University unless prior written permission was granted.

Undergraduate Students Taking Graduate Courses

Maximum Number of Graduate Credits Allowed

CNU students in undergraduate senior status, with an overall 3.0 GPA , are allowed to enroll in a maximum of 8 graduate credit hours (one course per semester with associated lab) and these credit hours may count toward the 120 credit hours for their undergraduate degree.

Enrollment

The form ***Request for Approval to take a Graduate Course at CNU While in Undergraduate Status*** must be completed and approved in order to enroll in a graduate course. The form is available on the web at http://gradstudies.cnu.edu, or from the Office of Graduate Studies, or from the Office of the Registrar. Approval to enroll in a graduate course must be obtained from the course instructor and the Graduate Program Coordinator with verification of the student's current grade point average by the Office of Graduate Studies. This form must be attached to the ***Add/Drop*** form at the time of registration.

Academic Performance

Any undergraduate student, whether in a five-year program or not, who earns a grade of ***C+*** or lower in a graduate level course will not be allowed to take any additional graduate courses while in undergraduate status. If an undergraduate student in a five-year program earns a single grade of ***F*** or two grades of ***C+*** or lower in a graduate level course(s), that student will not be allowed to continue in the five-year program and the offer of admission to the graduate program will be rescinded.

Graduate Students Taking Undergraduate Courses

A graduate student may enroll in a course which carries undergraduate credit if, in the graduate advisor's opinion, the student should be familiar with the subject matter of that course. A student registered for a course for undergraduate credit must complete all the requirements of the course and receive a grade for it. The grade will be noted on the graduate record but will not count toward a graduate degree nor be computed in any graduate grade point average.

A graduate student may take an undergraduate course on a pass/fail basis with the written approval by the Graduate Program Coordinator. A maximum of two courses are allowed, and limited to one course per semester.

ACADEMIC PERFORMANCE POLICIES

Minimum Standards for Academic Continuance

The University expects a degree-seeking student to make reasonable progress toward earning a degree. Both degree-seeking and non-degree-seeking students must demonstrate the incentive and ability to meet the minimum performance standards in order to remain in "good standing' for academic continuance at the University. Academic performance is measured by the grade point average (GPA), and graduate students are expected to maintain a cumulative grade point average of 3.0 for each semester for which the student is enrolled. In addition, graduate students are expected to earn grades of ***B-*** or higher.

Attempted credit hours are defined as those hours for which a student has enrolled in and earned a permanent grade. Attempted credit hours are cumulative.

Academic Probation

If a degree-seeking student is not making satisfactory progress toward a graduate degree, that student may be placed on academic probation. Degree-seeking and non-degree seeking students will be placed on academic probation for:

- a cumulative graduate grade point average below 3.0; or
- one grade of ***C***; or
- more than six credit hours of ***U***.

The notation "Academic Probation" will appear on the student's transcript. A student who is on academic probation will be required to raise his or her grade point average above 3.0 or to earn at least a grade of ***B*** in all graduate courses attempted in the next semester of enrollment in order to avoid being placed on academic suspension. The "Academic Probation" notation will appear for each semester until the student is in "Good Standing." "Good Standing" is defined as having a cumulative GPA of greater than or equal to 3.0 and being in non-probationary status. Credit for courses taken at other institutions while on probation will not be transferred to CNU.

Academic Suspension

Graduate students will be suspended following the first semester in which they do not meet the minimum standards for continuance. Degree-seeking and non-degree seeking students will be placed on academic suspension for:

- a cumulative graduate grade point average below 3.0 for a second consecutive semester; or
- two grades of ***C,*** to include ***C+***, ***C***, and ***C-***; or
- one grade of ***F;*** or
- nine or more credit hours of ***U***.

The notation "Academic Suspension" will appear on the student's transcript.

A suspended student is not permitted to register for additional credits in any semester or summer term until the conditions of the suspension are completed. The student may not register for any classes until after the next regular semester (i.e., fall or spring) following the suspension, and may not register for summer terms if the suspension includes the following fall semester.

Students who wish to return to CNU after their one semester of suspension, must:

- make an appointment to develop a Plan of Study with their Graduate Program Coordinator before November 1 for a return in the spring semester and before April 1 for a return in the summer or fall semester;
- include in the Plan of Study credit hour limits the student must observe and a schedule of courses to be taken each semester following the suspension;
- register for the semester immediately following their suspension semester, not including summer terms.

If the student follows this Plan of Study and earns a GPA of 3.0 or higher and earns no grade of ***F*** or any additional grade(s) of ***C***, then the student will not be suspended the next semester even if the cumulative GPA is below that required for minimum standing. If the student does not follow the Plan of Study, or does not earn a GPA of 3.0 or higher in each subsequent semester, the student will be suspended from the University.

Academically suspended students who do not return for two or more consecutive semesters (not including summer terms) must apply for readmission through Graduate Admissions. These applications will be judged by the graduate admission standards current at the time of application for readmission.

Upon reinstatement, the student will be on Academic Probation. If a student who has been reinstated receives a grade of ***C***, ***F*** or ***U*** in any graduate course, that student will be suspended from the University.

Academic Dismissal

Students who fail to meet minimum standards for continuance will be academically dismissed from the University upon receiving the second academic suspension. Additionally, degree-seeking and non-degree graduate students who earn two or more grades of ***F*** during one semester will be academically dismissed from the University. Students who have been academically dismissed may not apply for readmission to the University for at least two calendar years. Such applicants' academic records at CNU will be considered as part of the relevant materials for readmission to the University. The notation "Academic Dismissal" will be placed on the student's transcript.

Appeal Process For Suspension or Dismissal

All academic suspensions at the graduate level are made for one semester, not to include summer terms. A suspended student may initiate an appeal for immediate reinstatement and a dismissed student may initiate an appeal by submitting a letter of appeal to the Director of Graduate Studies. This letter must include evidence supporting the appeal and demonstrating that the student is able to complete successfully the planned graduate program. The evidence the student provides may include: 1) statements from the student; 2) the student's credentials; and 3) an explanation of circumstances leading to the original suspension. Reinstatement of a student on academic suspension or academic dismissal to graduate studies is a two-step process.

On receipt of the letter initiating an appeal, the Director of Graduate Studies will select a committee of not fewer than three members of the graduate faculty drawn from the student's area of study or related areas. This committee will review the student's record and the evidence contained in the appeal letter and recommend accepting or rejecting the appeal for immediate reinstatement or reinstatement. A recommendation to reinstate the student must be based on evidence strongly supporting the likelihood of the student's success in the graduate program. The committee may also impose requirements that must be completed prior to reinstatement. These requirements may include a fixed period of suspension for a dismissed student (not to exceed one semester following the semester during which the academic suspension being appealed occurred) or the taking of specific undergraduate courses designed to strengthen the student's deficiencies. In addition, the student will be required to develop a Plan of Study with his or her Graduate Program Coordinator. A student may not register for any graduate level courses at the University while on academic suspension.

The Director of Graduate Studies will render a final decision on the appeal based upon this committee's recommendation. An academically suspended student whose appeal for immediate reinstatement is rejected must follow the requirements listed under the heading **Academic Suspension**. A student whose appeal is accepted moves to the second step in the reinstatement process. A student whose appeal of academic dismissal is rejected must wait at least one year to appeal again.

The second step in the reinstatement process consists of meeting all of the requirements imposed by the *ad hoc* graduate faculty committee. This same committee will review the student's progress and verify that the imposed requirements have been met completely. When the requirements have been met, the Director of Graduate Studies will be notified and the reinstatement will be complete.

Academic Reinstatement Policy

For reinstatement, the Graduate Program Coordinator must inform the Director of Graduate Studies that the suspended student has developed and completed the actions on the Plan of Study. For students who appeal the suspension or dismissal, the Director of Graduate Studies will render a final decision of the appeal. If the appeal is successful, the *ad hoc* graduate faculty committee is responsible for informing the Director that the terms of the appeal have been completed.

Upon reinstatement, the student will be on Academic Probation. From this point on, all of the grades on the student's graduate record earned prior to suspension which are ***C***, ***F*** or ***U*** will not be counted toward a master's degree. If a student who has been reinstated receives a grade of ***C***, ***F*** or ***U*** in any graduate course, that student will be suspended.

DEGREE REQUIREMENTS

The following represent the minimum University requirements for the master's degree. Individual programs may impose additional requirements.

Credits

To receive the master's degree, all graduate students, including those enrolled in the five-year baccalaureate to master's programs, must present on the graduate transcript successful completion of a minimum of 30 hours of graduate credits. However individual programs may require additional hours. No more than six semester hours of graduate credit may be transferred from another college and/or be taken elsewhere by a degree-seeking student as described below. Credit transferred from another institution will be counted toward the total number of credits required for the graduate degree but will not be computed in the student's cumulative graduate grade point average. If no thesis, internship or culminating project is required as a part of the degree requirements, a minimum of 36 graduate credits will be required for the degree.

Transfer of Credit

A maximum of six semester hours of graduate credit from another regionally accredited institution may be included in a degree-seeking student's graduate record if all of the requirements are met. Transfer of credit is allowed in two ways: acceptance of previously earned credit; and/or requesting to take a course at another regionally accredited institution while enrolled as a CNU degree-seeking graduate student.

Previously Earned Credit

A degree-seeking graduate student may transfer a graduate course from another regionally accredited institution and apply the credit toward a degree at Christopher Newport University provided that the intended transfer of credit meets all of the requirements stated below.

- An earned grade of ***A*** or ***B***.
- Pass/fail or satisfactory/unsatisfactory grades are ineligible for transfer credit.
- Courses submitted for transfer credit must have been applicable toward a similar degree at the institution awarding them.
- Submit an official transcript from a regionally accredited institution showing the course and the grade earned.
- Evidence of the course applicability toward a graduate degree must be forwarded to the Graduate Program Coordinator.
- Transfer credit must have been taken within six years prior to the award of the CNU master's degree.
- The Graduate Program Coordinator must approve the transfer of credit.
- The request for transfer of previously earned credit must be made during the student's first semester as a degree-seeking student.
- No transfer credit will be allowed for courses that have been used to fulfill the requirements of another earned degree.

Transfer Credit Earned While a Degree-Seeking Student

A degree-seeking graduate student may take a graduate course at another regionally accredited institution and apply the credit toward a degree at Christopher Newport University provided that the intended transfer of credit meets all of the requirements stated in the Transfer of Credit section.

- The student must complete a ***Request to Take Graduate Course Elsewhere*** form, available from the Office of Graduate Studies website (http://gradstudies.cnu.edu/forms.html) and submit it to the Graduate Program Coordinator.
- The student is responsible for completing all the steps in this approval process in a timely manner **prior** to registering for the course, or the course will not be eligible for transfer.
- The student must submit the completed ***Request to Take Graduate Course Elsewhere*** form to the Office of Graduate Studies for final approval.
- Upon completion of the course, the grade earned must be an ***A*** or ***B*** to be eligible for transfer credit.
- Pass/fail or satisfactory/unsatisfactory grades are ineligible for transfer credit.
- The class format and course length should be equivalent to what is offered at CNU.

Generally, permission to take a course elsewhere will not be given during the student's last semester at CNU or if the course is offered at CNU during that semester.

Time Limit

Graduate students must complete all of their work toward a master's degree within a period of six calendar years. This period begins with the student's initial registration as a graduate student. Academic work, including transfer credit, taken more than six years prior to the award of the master's degree cannot be credited toward that degree. In extenuating circumstances a student may petition for a waiver of this limit. The waiver must be approved by the student's advisor, Graduate Program Coordinator and the Director of Graduate Studies. Additional conditions, imposed to verify the currency of knowledge involved in the courses for which the six-year limit might be waived, may be imposed.

Plan of Study

Each student in consultation with his or her advisor should develop a Plan of Study showing a reasonable concentration of interrelated subjects. This plan should be formulated and approved by the student's advisor before the student has completed 15 hours of graduate study. The student's advisor must approve any change in the student's Plan of Study. In case of changes in program requirements subsequent to the year the student became degree-seeking, the degree's Program Coordinator and the Director of Graduate Studies must approve changes to the standard degree program.

Full-time Status

Students who enroll in nine (9) or more graduate credits in a given semester or a total of at least six (6) credits for all summer sessions combined will be considered a full-time student. **Students need approval of the Director of Graduate Studies to take more than twelve graduate credits in a given semester or more than six graduate credits in a summer session**. No student may enroll for more than 13 graduate credits in a given semester or more than 12 graduate credits in all summer sessions combined without permission of the Director of Graduate Studies.

Comprehensive Examination

A degree program for a master's degree may require a comprehensive examination to evaluate the student's proficiency in his or her field. This comprehensive examination may be written and/or oral. The nature of the comprehensive examination is determined by the department(s) involved in administering the degree. At the time of the comprehensive exam or at a specifically designated time, each student will be asked questions that specifically assess the student's mastery of course-related objectives. A student failing the comprehensive examination may request a re-examination within six months of the failure. Only one additional examination is permitted. For MAT degree candidates, the Praxis II is the comprehensive examination.

Thesis

Research resulting in the presentation of a thesis may be required by the degree program. **Thesis students are required to be enrolled in at least one thesis credit hour during any semester in which they are working on the thesis and must be enrolled in one thesis credit hour during the semester of degree completion.** The defense of the thesis may be considered as part of the comprehensive examination. All theses presented must meet the requirements as listed in the ***Policy and Style Manual for Master's Theses at Christopher Newport University.*** The manual is available at http://gradstudies.cnu.edu/documents/Thesis_Manual_2006.doc **.** Theses may be placed in the CNU library as research sources available to the academic community.

For the **Thesis Format Review and Final Copy Due Dates** access Graduate Studies Dates and Deadlines website at http://gradstudies.cnu.edu/dates.html .

Intent to Graduate Form

Students must file the ***Intent to Graduate*** form, available at http://gradstudies.cnu.edu/, with the Office of Graduate Studies by the following dates:

September 15	**May Graduation**
February 1	**August Graduation**
February 1	**December Graduation**

Commencement Exercises

Commencement exercises are held once each year in May. Students who complete degree requirements in August and December are eligible to participate in the Spring Commencement ceremony. Diplomas for August graduates will be available on the first business day after the end of the last summer term. Diplomas for December graduates will be available ten calendar days after the semester ends. For August and December graduates who do not pick up their diplomas as designated and who plan to participate in the Spring Commencement ceremony, diplomas will be available for pick-up immediately following the commencement ceremony.

All prospective graduates will be contacted by the Office of the Registrar concerning rehearsal and attendance before commencement exercises. **Those students planning to attend commencement must notify the Office of the Registrar by the announced deadline so that seating arrangements can be finalized for all who plan to participate.** Prospective graduates will be advised when to order caps and gowns from the University Bookstore. Students who plan to attend commencement must keep the Office of the Registrar informed of any address changes so that students can receive important information concerning graduation. Students will not be permitted to participate in commencement ceremonies unless all requirements, including courses and credits, GPAs, and financial obligations are completed prior to the ceremony.

GRADUATION REQUIREMENTS

- Successful completion of minimum hours of the master's degree program course work
- Cumulative graduate grade point average of 3.00 in all CNU courses submitted for graduate credit with no more than two grades of ***C***
- Submission of the ***Intent to Graduate*** form by the following dates:

September 15	May Graduation
February 1	December Graduation
February 1	August Graduation

- Successful completion of the comprehensive examination, if applicable
- Thesis students are required to be enrolled in at least one thesis credit hour during any semester in which they are working on the thesis and must be enrolled in one thesis credit hour during the semester of degree completion.
- Successful defense of a culminating project or thesis (if applicable) and presentation of the appropriate number of approved copies to the Office of Graduate Studies by the published deadline on the Graduate Studies website at http://gradstudies.cnu.edu/ .

Tuition and Fees

The University reserves for itself the right to withdraw or change the fees announced in this catalog. Interpretation of matters concerning fees in this catalog is the responsibility of the Executive Vice President. The President of Christopher Newport University has final authority in the interpretation. Tuition and comprehensive fees are established each year by the Rector and Board of Visitors of Christopher Newport University. The rates listed in this catalog are applicable only for the academic year 2007-2008, which begins with the Fall Term of 2007, and ends with Summer Term III of 2008. Current tuition and fees can be found on the CNU Business Office website at: http://businessoffice.cnu.edu/.

FEES AND FINANCIAL INFORMATION

Academic Tuition

In-state Graduate Tuition	$327.00 per credit hour
Out-of-state Graduate Tuition	$611.00 per credit hour

The tuition charge is based on a per credit hour rate. Tuition and fees for auditing a course are the same as the tuition and fees for taking a course for credit. Questions concerning payments and fees should be directed to the Office of Student Accounts, Room 210, Administration Building, (757) 594-7195 or (757) 594-7060.

General Fees*

Application Fee - Graduate Degree-Seeking (effective 07/01/2007)	$45
Application Fee - Graduate Non-degree-Seeking	$35
Academic Transcripts	No charge
Returned Check Fee (per return)	$25
Late Payment Penalty and Administration Fee (per payment)	$50
Reinstatement Fee (first week of classes)	$100
(second week of classes)	$200
Residential Room Deposit	$250
Parking Fee (per academic year)	$250
Parking Fee (summer only - beginning 2008)	$125

* The fees listed above are non-refundable.

**Graduation regalia must be purchased at the University Bookstore.

FOR UP TO DATE INFORMATION PLEASE REFER TO: www.cnu.edu/tuition

Graduate Application Fees

A student who wishes to be admitted as degree-seeking must pay a $45 non-refundable application fee. A student who wishes to be admitted as non-degree must pay a $35 non-refundable application fee. If the student does not enroll in the term for which he or she originally applied, the fee may be carried forward only to the next term.

Late Payment Penalty and Administration Fee

The University charges a $50 late payment fee on all amounts owed to the University which are not paid by the payment due date.

Schedule Adjustments (Add/Drop)

Any schedule change that results in additional funds due to the University is due and payable on the date the course is added, or no later than the end of the schedule adjustment period the first week of classes. If the additional amount due is not paid on this date, a $50 late payment fee applies.

Students who are using the TuitionPay monthly payment plan and who drop a course or courses may

reduce their monthly payment. Students should contact the CNU Student Accounts Office, 757-594-7582, to take this action. Students may not increase their payment plans for courses added during the schedule change period. Additional amounts due for courses added are payable to the University in full on the date the course is added, or no later than the end of schedule adjustment (drop/add).

Students who plan to, or are receiving financial aid, course-load reductions and additions can affect the amount of financial aid awarded to them. This is particularly true if a course reduction results in a full-time student becoming a part-time student. Students will be responsible for any charges remaining after a course-load change, and any amount due as a refund under the University's policy may be refunded directly to the financial aid grantor, rather than to the student, if the rules of the grantor so require. If a student receives a financial aid award and must decrease his or her academic workload, he or she should contact the Office of Financial Aid.

Residence Hall Financial Information

Cost per academic year for a standard room and meal plan are set by the Board of Visitors. To apply, submit the ***Housing & Dining Service Contract Acceptance Form***, available on the Housing website, with a $250 deposit to the Cashier's Office, Administration Building, or mail to Christopher Newport University, ATTN: Cashier's Office, One University Place, Newport News, VA 23606-2998.

Occupancy is on a first-come, first-serve basis. Room and board fees must be paid in full prior to move-in. These fees are due by 5:00 pm on the payment due date (postmark date does not apply) unless other arrangements have been made (i.e. financial aid award, monthly payment plan, etc.)

To obtain a ***Housing and Dining Contract Acceptance Form***, please contact the Office of University Housing at Christopher Newport University, One University Place, Newport News, VA 23606-2998, or call (757) 594-7756/7574. This form also is available at: http://housing.cnu.edu/contracts.html

PAYING YOUR BILLS

Effective Fall 2007, a student will be able to view his/her student account charges online and make eCheck or Credit Card payments to pay the tuition and fees, and room and board charges. Account charges will not be mailed, but can be accessed via the web at any time. The student will receive an immediate confirmation of payment online. More details and instructions are available at www.cnu.edu/tuition .

Billing

Tuition bills will be available online to students who register during early registration in early July for the fall semester and December for the spring semester. Failure to access your bill does not waive the student from financial penalties. Contact the office of Student Accounts at (757) 594-7195 if you have questions.

For registrations, schedule adjustments, housing and meal plan assignments taking place after early registration and the initial billing, payment is due by the payment due date or no later than the first day of class for that term. It is the student's responsibility to insure all charges are paid prior to the first day of class each term. For additional information and due dates go to www.cnu.edu/tuition select topics from the left menu.

Payments

In addition to QuikPay, payment may also be made at the Cashiers Office with cash, check payable to Christopher Newport University (CNU) or money order. All payments except cash may be placed in the drop-box located outside the Office of Students Accounts, Administration Building, Room 210. Social Security Number or student ID number must be enclosed with payment. Students may also pay their tuition bills to the University through a monthly payment program offered by TuitionPay (SallieMae) discussed later in this publication.

TAKE CAREFUL NOTE OF THE FOLLOWING:

1. Students who owe the University any charges accrued from previous terms (i.e. tuition, parking fines, library fines, bookstore charges, etc.) are required to pay these charges before being permitted to register.
2. Students who receive any form of tuition assistance must provide the Office of Student Accounts with properly approved tuition assistance forms and pay any balance by the payment due date or a late payment fee will be assessed.

3. Students who are receiving any form of financial aid must have their aid awarded, approved and accepted, prior to the payment due date. Deferments will be for only the amount of the award and students are required to pay any balance by the payment due date. (This does not apply to private alternative loan programs.) If the difference is not paid by the payment due date, a late payment fee will be assessed. If a financial aid recipient chooses to withdraw from classes, they must officially withdraw through the University Registrar or they will be held liable for all classes for which they are registered. Students may also be liable to repay any financial aid disbursed if the semester is not successfully completed. Late Financial Aid applicants must be prepared to meet the tuition obligation through means other than financial aid by the payment due date.
4. The University may at its sole discretion cancel a student's registration for failure to meet financial obligations at any time.

Payment Policy

Tuition and fees are considered fully earned and are due at the time of registration or no later than the payment due date established for each term. Tuition payments may be mailed, if received in the University Business Office, by the payment due date. NOTE: Postmark date does NOT apply. Payment also may be paid online through your CNU Live, select "Tuition & Fees"

In the Fall Term, at 5:00 p.m. on the PAYMENT DUE DATE, the University may cancel the registration for all students who have not made financial arrangements. These students may register again during scheduled registration periods. The University does not guarantee that students will be able to obtain their original schedules. Classes are available on a first-come-first serve basis. Reinstatement does not apply if a student's registration is cancelled on the payment due date. In the Spring Term, classes are cancelled at the end of the schedule adjustment period.

Reinstatement

Beginning on the Monday following the schedule adjustment period, students whose registration was canceled on Friday may be reinstated provided they pay the full amount of their financial obligation. Students may be reinstated during the week following schedule adjustment for a reinstatement fee of $100 plus a $50 late fee. Students may be reinstated during the second week following schedule adjustment for a reinstatement fee of $200 plus a $50 late payment fee.

Reinstatement will not be processed unless the student has paid the full financial obligation. If the student presents the University with a check that is returned from the bank for insufficient funds, the student's registration will automatically be canceled and no further opportunities for reinstatement will be permitted.

During the reinstatement period, students may not make any schedule changes. Students will be reinstated for the original schedule only. Reinstatement will only be permitted for two weeks following the week of schedule adjustment. No Reinstatement will be permitted after this date. Reinstatement does not apply to students whose registration was canceled prior to Schedule Adjustment week.

Sallie MaeTuitionPay - Monthly Payment Plan

This payment option allows payment of annual tuition and fees in ten (10) equal monthly installments. The plan begins on June 1, with the last payment due on March 1. Participation in the plan is on an annual basis, at an annual cost of $55.00. When determining the amount to budget, please consider tuition and fees for FALL and SPRING terms, applied music fees, and room and board (if applicable). This plan may be used by full time or part-time students. The payment plan may only be used for the fall and spring terms and cannot be used for the summer terms. Fall term tuition and fees must be paid in full by the 5th payment, which is due October 1st. If this payment does not pay Fall term charges, transcripts will be held and registration for the spring term will not be permitted.

The University assesses a $50 late payment fee for EACH PAYMENT that is made late. This fee is payable directly to the University. Information concerning this plan will be forwarded separately or may be obtained by calling TuitionPay directly at (800) 635-0120. Students are encouraged to apply for the plan as soon as possible. The application deadline is August 1 each year. Students who have applied for and receive financial aid may participate in the monthly tuition payment plan. Students do not have to apply through the University's Office of Financial Aid to participate in the tuition payment plan.

Refund Policy

If the University cancels a course for which a student has registered, the student is entitled to a full refund for that canceled course. Please note that refunds will not be given for any fee listed in this catalog or the Schedule of Classes as a non-refundable fee unless the course is canceled by the University.

Federal financial aid recipients who totally withdraw from the University will have their refund processed in accordance with Federal Law. These laws provide for a prorated refund if a student totally withdraws before the academic term is complete. These funds may be refunded to the financial aid grantor if the grantor so requires. All refund checks are processed through the State Treasurer and are mailed directly from Richmond to the student. Students should receive refunds within 45 days from the date the student makes the schedule change.

For students receiving financial aid or tuition assistance, funds from these programs are applied to the student's account as received until the entire financial obligation to the University is satisfied. Refunds are made to the student from the last funds received if the student's account is overpaid.

Students must drop a course on or before the deadline to be eligible for a refund. Students who participate in the monthly payment plan whose payments received by the University exceed the amount owed will receive a refund from the University. Please do not attempt to obtain a refund from TuitionPay directly.

All refunds will be processed according to the above policy. If there are extenuating circumstances (such as mandatory job transfer from the Hampton Roads area documented by a letter from the employer or extended period of hospitalization documented by a physician's statement), students should contact the Office of Student Accounts, Room 210, Administration Building, telephone (757) 594-7195 or 7060 to obtain an appeal of university refund policy form. Notification of the final decision will be made within two weeks.

Please be aware that students are held individually responsible for the information contained in this catalog. Failure to read and comply with University regulations will not exempt a student from financial penalties. All appeals must be filed by the end of the academic term to be considered. Any appeal filed after the term will be denied regardless of the circumstances.

Refund Schedule for Fall and Spring Semesters

Tuition and comprehensive fees will be refunded for fall and spring terms as follows: 100% for any course which is canceled by the University; 100% for any course dropped on the first day of the academic term through the end of the first week; 75% for any course dropped during the second week of the academic term; 50% refund for any course dropped during the third and fourth week of the academic term, after which time there shall be no refund.

Refund Schedule for Summer Terms

For refund policies concerning Summer Terms please refer to the CNU Business Office website: http://businessoffice.cnu.edu/ .

Returned Checks

A RETURNED CHECK FEE of $25 will be assessed for all checks returned from the bank to the University for any reason. An individual has seven calendar days to repay the amount of the check and the returned check fee. If a check for tuition and fees is returned to the University from the bank for any reason there will be a $25 returned check fee. If the student does not repay the check and the fee before the payment due date, a $50 late payment fee will be assessed in addition to the returned check fee. If the student does not repay the total amount due within seven calendar days, his or her registration will be canceled. If a student who is being reinstated presents a check to the University that is returned by the bank for any reason, his or her registration will be canceled and he or she will not be permitted to return during that term. If the University receives TWO non-sufficient fund checks from a student, the University will no longer accept checks from the student.

Delinquent Financial Obligations

Students who have outstanding financial obligations to the University (including tuition and fees, room and board, bookstore charges, parking fees and fines, library fees and fines, checks returned for non-sufficient funds, etc.) will be refused all services at the University until these financial obligations have been paid in full. Students will not be permitted to register for subsequent terms, grades will be held, and the University

will not issue official transcripts, etc. This also will apply to students who retain property that belongs to the University.

If a student's financial account becomes delinquent, the University charges a $50 late payment penalty and administrative fee. The University may turn the account over to a third-party collection agency/credit bureau, the Department of Taxation, and the Attorney General's Office. The University is permitted under Virginia law to attach Virginia State income tax refunds or lottery winnings in repayment of any debt owed to the University. In the event an account becomes delinquent, the student is responsible for all reasonable administrative costs, collection fees and attorney's fees incurred in the collection of funds owed to the University.

VETERANS BENEFITS

Students who are veterans, service members or dependents using Veterans Administration education benefits must make payment by the payment deadline. Students who are using Veterans Administration education benefits for the first time should anticipate a delay of approximately eight weeks before the first education allowance check is mailed. Students who plan to use V.A. benefits should contact the University's Office of Veterans' Affairs, located in the Office of the Registrar, by telephone at (757) 594-7155.

VMSDEP - The Virginia Military Survivors and Dependents Education Program
Formally War Orphans, provides education benefits (tuition and required fees) to spouses and children of military members killed, missing in action, taken prisoner, or who became at least 90 percent disabled as a result of military service in an armed conflict. This program is administered through the Virginia Department of Veterans Affairs. Please refer to Code of Virginia, Section 23-7.4:1(A) for more details.

SENIOR CITIZENS

The 1989 session of the Virginia General Assembly amended and re-enacted the Senior Citizen's Higher Education Act of 1974. Senior citizens are permitted to register and to enroll in courses as a full-time or part-time student for academic credit, without charge, providing taxable income for federal income tax purposes did not exceed $15,000 for the year preceding the enrollment year. Senior citizens may also, without charge, enroll in academic credit courses for audit purposes and in non-credit courses offered by the University without regard to income. They will, however, be required to pay applied music fees for any course for which such a fee is applicable. Senior citizens must meet the applicable University admissions requirements to participate in this waiver program, and the determination of the University's ability to offer a selected course is at the discretion of the University.

The law passed by the General Assembly in the 1988 session requires the State Council of Higher Education to establish procedures to ensure that tuition-paying students are accommodated in courses before senior citizens participating in this program are enrolled. In the case of eligible senior citizens who have completed 75 percent of the requirements towards a degree, the University is authorized to make individual exceptions to such procedures as may be established by the Council of Higher Education.

Under this program, the categorization of senior citizen applies to those whose 60th birthday falls before the registration term and who have been a legal domiciliary of Virginia for one year. No limit is placed on the number of terms a senior citizen who is not enrolled for academic credit may register for courses, but the individual can take no more than three non-credit courses in any one term. The law places no restriction on the number of courses that may be taken for credit in any term or on the number of terms in which an eligible senior citizen may take courses for credit. Forms to request the senior citizen tuition waiver are available in the Office of Student Accounts, Room 210, Administration Building, and must be completed each academic term.

CLASSIFICATION AS AN IN-STATE STUDENT

Students and applicants for admission who claim entitlement to in-state educational privileges, including in-state tuition rates, must demonstrate their eligibility in accordance with the provisions of Section 23-7.4 of the Code of Virginia. Applicants for admission who believe they qualify for in-state educational privileges must complete the ***Application for In-State Tuition Rates*** and return it with their application for admission. Students who already are enrolled at CNU must apply for a reclassification of status through the Graduate

Admissions. Such requests must be made on ***Application for In-State Tuition Rates***. Inquiries should be addressed to Graduate Admissions, McMurran Hall Room 101C, One University Place, Newport News, VA 23606-2998.

Procedure

Upon receipt in Graduate Admissions, the ***Application for In-State Tuition Rates*** form will be reviewed by a staff member for an initial determination. If the staff member disagrees with the student's own determination for in-state privileges, the student will be contacted and given an explanation of the determination.

Appeals

Students who disagree with the original residence decision may request an immediate appeal, orally or in writing; but it must be done within 10 working days of being notified of the initial determination. A panel of three University officials will review the appeal. Students are welcome to forward any supporting documentation (e.g., income tax returns). The panel will respond to appeals within five working days. Students who still disagree may request a final appeal. This appeal must be made in writing, addressed to the Associate Director of Graduate Admissions and Records within five working days of the first appeal decision. Another panel of University officials will then convene to consider the appeal. A written determination will be sent to the student by U.S. Registered Mail within five days of the hearing. Should the student disagree with the final determination, he or she then has 30 days to take this matter to Circuit Court.

Financial Aid

Christopher Newport University offers financial assistance to qualified graduate students to help pay for all or part of their college expenses. All students are encouraged to complete the *Free Application for Federal Student Aid* (FAFSA) by February 1st to ensure aid is in place for the following academic year. FAFSA forms can be completed on the web at http://www.fafsa.ed.gov with the appropriate PIN number. Results are sent to the CNU Office of Financial Aid electronically and students can expect to receive their offer of financial aid no later than June 30. Students who file their FAFSA late should be prepared to pay their tuition and expenses up front. Students must apply for financial aid every year using the FAFSA to continue to receive aid.

STUDENT ELIGIBILITY

To be eligible for financial aid, graduate students must:

Be admitted as a degree seeking student in an eligible graduate program;
Be enrolled at least half-time;
Be in good academic standing;
Be making satisfactory academic progress;
Be a U.S. citizen or eligible non-citizen;
Not owe a refund of a federal grant;
Not be in default on a federal student loan.

Half time students must be enrolled at least five (5) credits for fall and spring semesters, and a total of at least three (3) credits for all summer sessions combined to receive aid. Total aid for the year cannot exceed federal annual loan limits established by the federal government and are limited by the cost of attendance (tuition, fees, room, board and miscellaneous expenses as defined by the Office of Financial Aid).

FEDERAL STAFFORD STUDENT LOAN

Graduate students may borrow up to $20,500 per academic year, not to exceed the cost of attendance. Loans made under the Federal Stafford Student Loan program are at a fixed interest rate and are long-term, deferrable loans. These loans may be subsidized, unsubsidized, or a combination of both, based on the need of the student. Subsidized loans are interest free to the borrower as long as the student is enrolled at least half-time and are based on need. The maximum subsidized loan for a graduate student is $8,500. If a student does not show need as determined by the FAFSA, the loan may be unsubsidized and the interest that accrues while the loan is in deferment is the responsibility of the student. An additional unsubsidized loan of $12,000 is available to graduate students, for a total of $20,500 per year, not to exceed the cost of attendance. These loans are deferred until six months after the student graduates or stops attending half time.

Loan proceeds are sent directly to CNU and applied to charges before any refunds are made to the student. Funds will come via either paper check or electronic funds transfer, according to the student's choice of lender.

SCHOLARSHIPS

Graduate students are encouraged to seek out outside scholarships as an additional source of funding to pay for college. The following is a list of suggested websites:

Http://www.DirectScholar.com
Http://www.fastweb.com
Http://www.BrokeScholar.com
Http://www.scholarships.fatomei.com
Http://www.findtuition.com
Http://www.FreeCollegeScholarships.net

When the Office of Financial Aid is notified of specific outside scholarship sources, they will be made available via email to all students, on the Financial Aid website, and at the Office of Financial Aid.

Satisfactory Academic Progress

Per federal regulations, students receiving financial aid must be making progress toward a degree. Students must remain in good academic standing and complete 75% of the courses attempted.

Budget Planning

Budget planning for attending CNU should consider both direct and indirect costs. Direct charges are tuition and fees (http://businessoffice.cnu.edu/fall_spring.htm). Indirect costs include but are not limited to room, board, books, transportation, and miscellaneous expenses. Students should be prepared to pay out-of-pocket for books and initial living expenses, as student loans are not disbursed until the first week of classes.

Additional Information

Students interested in receiving financial aid should view the Christopher Newport University website at http://financialaid.cnu.edu/. Financial aid applications and individual guidance are available on a walk-in basis at the Office of Financial Aid, Administration Building, Room 201. You may also call the office at (757) 594-7170 or email your questions to finaid@cnu.edu.

SHORT-TERM EMERGENCY LOANS

John Stephen Rasmussen Memorial Fund

This fund was established by the community in 1972, in memory of John Stephen Rasmussen, a 21-year old student who lost his life in a fire while in the act of saving others. He was posthumously awarded a Carnegie Medal. Students may borrow, interest free, sums (funds permitting) for a period not to exceed 30 days. Applicants should present a valid CNU student ID card when applying to the University's Office of Student Accounts.

Emergency Loan Fund

The Emergency Loan Fund was established in 1967 by the sophomore class, in honor of former CNU President James C. Windsor. Students may borrow, interest free, sums (funds permitting) for a period not to exceed 30 days. Applicants should present a valid CNU student ID card when applying to the University's Office of Student Accounts. Emergency loans are limited to $200.00 per student, and students may receive no more than two emergency loans per academic term.

GRADUATE ASSISTANTSHIPS

Terms

The length of time a graduate student may receive an assistantship is a combination of four semesters and two summers in a two-year period. Types of assistantship activities: research and/or related activities, administration (e.g., of tutorial programs), or teaching and/or related activities. Additional employment cannot exceed 10 hours per week (1/4 time) without prior approval of the Director of Graduate Studies. If the assistantship requires 20 hours per week (½ time) then there can be no outside employment without prior approval of the Director of Graduate Studies.

Criteria

The degree-seeking graduate student must be enrolled as a full-time student, taking a minimum of six and a maximum of nine credit hours in the semester of the award. He/she must submit a Graduate Assistantship Application and the following: scores from the standardized test required for graduate program admission, graduate grade point average, undergraduate grade point average, two letters of reference, and an essay explaining how the award will further his/her career goals.

Application Procedures

Contact the Office of Graduate Studies at (**757) 594-7544** or **gradstdy@cnu.edu** for a ***Graduate Assistantship Application*** and submit the application directly to your Graduate Program Coordinator with a copy to the Office of Graduate Studies.

Graduate Studies

Master of Arts in Teaching

This master's program is designed for students who wish to become licensed teachers. A combination of course work and field experiences prepare students with competencies necessary to enter the teaching profession. At the conclusion of the program, students receive a license to teach in the Commonwealth of Virginia.

Master of Science in Applied Physics and Computer Science

The emphasis of this master's program is on experimentation, instrumentation and computer analysis. The degree, with three concentration areas, is designed to produce graduates ready to make strong contributions to their professions and, if they so desire, to continue toward a Ph.D. degree in applied physics, computer engineering or computer science.

Master of Science in Environmental Science

Designed for current and prospective employees in the rapidly growing field of environmental monitoring and conservation, this master's program provides a solid background in ecological and environmental conservation theory. The core courses are those mentioned most frequently by employers, consultants and educators as those needed for successful employment. The remainder of the curriculum is designed to enhance the understanding of ecosystem ecology, the conservation of organisms and their environment, and environmental chemistry.

Master of Arts in Teaching

The Master of Arts in Teaching is designed for those candidates who desire to become effective classroom teachers. This program offers graduate students instruction in content and pedagogy that prepares them for successful first-year teaching.

All students study instructional practices which are based on evidence provided by educational research. In addition, an emphasis is placed on the study of diversity in the United States and implications of that diversity for educational practice.

MAT students select an endorsement area from one of the following:

ART	**PK - 12**
BIOLOGY	**6 - 12**
COMPUTER SCIENCE	**6 - 12**
ELEMENTARY	**PK - 6**
ENGLISH	**6 - 12**
FRENCH	**PK - 12**
HISTORY & SOCIAL SCIENCE	**6 - 12**
MATHEMATICS	**6 - 12**
MUSIC (CHORAL OR INSTRUMENTAL)	**PK - 12**
PHYSICS	**6 - 12**
SPANISH	**PK - 12**
THEATER	**PK - 12**

Upon completion of the program, students are recommended for licensure through the Virginia Department of Education to teach in the Commonwealth of Virginia. Students may enroll on a part-time or a full-time basis. Teachers may wish to take advantage of the many evening and summer graduate course offerings for re-licensure or continued professional development.

Dr. Marsha Sprague
Director, Teacher Preparation
Graduate Program Coordinator
msprague@cnu.edu
124 Ratcliffe Hall
(757) 594-7388

Master of Arts in Teaching

The Master of Arts in Teaching (MAT) is a practitioner-oriented degree designed to translate theory into effective instructional practice. The curriculum is based on recognized needs for teacher education as identified by bodies such as the National Board of Professional Teaching Standards and The Holmes Group. The mission of the CNU MAT Teacher Preparation Program is to prepare highly qualified teachers who are licensed to teach in the Commonwealth of Virginia and in reciprocal states throughout the United States.

The Teacher Preparation Program Curriculum

The Teacher Preparation Program curriculum includes education and content courses that provide opportunities for students to learn teaching methods appropriate to the endorsement area. A student teaching experience, with portfolio documentation, serves as the culminating event.The Teacher Preparation Program offers three curriculum options:

Master of Arts in Teaching with Licensure

Those who have obtained a baccalaureate degree and desire to enroll in the Master of Arts in Teaching with Licensure program enter in a degree-seeking status. The curricula for the endorsement areas are shown on pages titled *Course Plan for MAT with Licensure, Already Degreed.*

Licensure Only

Those who have obtained a baccalaureate degree and desire to seek a Commonwealth of Virginia license enter in a non-degree status. The curricula for the endorsement areas are shown on pages titled *Course Plan for Licensure Only, Already Degreed*.

Five-Year Combined Bachelor's Degree and Master of Arts in Teaching Degree

Undergraduate CNU students may apply in the spring of their junior year to the five-year MAT program. The curricula for the endorsement areas are shown on pages titled *Course Plan for MAT Five-Year Program with Licensure*.

Admission Requirements

Master of Arts in Teaching with Licensure

1. A baccalaureate degree from a regionally accredited college or university with a minimum grade point average (GPA) of 3.00 on a 4.00 scale;
2. An official transcript from the baccalaureate institution with the degree posted, and official transcripts for all graduate work taken at other institutions;
3. Three letters of recommendation. These must be from professional educators who have observed the applicant's teaching or from professors who can attest that the applicant is likely to be able to be successful in graduate level academic work;
4. PRAXIS I test results which show a minimum composite score of 532 from the Reading, Writing, and Mathematics subtests;
5. A one-page typed essay describing the applicant's purpose and strengths for entering the teaching profession.

Licensure Only

1. A baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 2.70 on a 4.00 scale;
2. An official transcript from the baccalaureate institution with the degree posted, and official transcripts for all graduate work taken at other institutions;
3. Three letters of recommendation. These must be from professional educators who have observed the applicant's teaching or from professors who can attest that the applicant is likely to be able to be successful in graduate level academic work;
4. PRAXIS I test results which show a minimum composite score of 532 from the Reading, Writing, and Mathematics subtests;

5. A one-page typed essay describing the applicant's purpose and strengths for entering the teaching profession.

Five-Year Combined Bachelor's Degree and Master of Arts in Teaching Degree

See page 14 for the Five-Year MAT Program admission requirements.

Teachers Taking Courses for Re-licensure or Professional Development

Any regular or provisionally licensed Virginia teacher who desires to enroll in a graduate course for re-licensure or continued professional development may do so in a graduate non-degree status, if they:

1. Hold a baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 3.00 on a 4.00 scale;
2. Provide a copy of the official transcript from the baccalaureate institution with the degree posted.

Non-degree Students Not Enrolled in a Program

Individual courses in the curriculum may be taken by students not pursuing an advanced degree at the University by entering as a non-degree student, if they:

1. Hold a baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 3.00 on a 4.00 scale;
2. Provide an official transcript from the baccalaureate institution with the degree posted.

Changing from Non-degree Status to Degree-seeking Status

A non-degree student may apply to change to degree-seeking status if he or she has completed 12 hours of MAT graduate courses with a cumulative 3.5 GPA or higher. To apply, submit the ***Request for Change to Degree-seeking Status*** form to Graduate Admissions along with the documentation listed in Admissions Requirements for the Master of Arts in Teaching with Licensure section.

Goals of the Master of Arts in Teaching Preparation Program

Students who complete the Teacher Preparation Program at Christopher Newport University will demonstrate competence in these areas:

1. Planning and preparing for instruction based on knowledge of content, resources and students;
2. Creating a safe, orderly and nurturing environment that creates high expectations for all while recognizing and respecting diversity;
3. Delivering and assessing instruction to meet state-mandated and district objectives, adjusting methods as needed to engage and teach every child;
4. Professional responsibilities of dress, collegial behaviors, engagement with families, administrative duties, and self-directed growth.

Program Completion Requirements

The student receiving the MAT degree and/or recommendation for state licensure must accomplish all of the following:

- 3.0 GPA in graduate course work with no more than two grades of ***C*** on the graduate transcript;
- Those students in the five-year program must earn a minimum of 30 hours while in graduate status;
- Passing scores on the appropriate PRAXIS II exam and other state-mandated examinations;
- An acceptable portfolio evaluated by a University supervisor;
- Completion of all courses required for state licensure.

  NOTE: Program completion will result in a recommendation for Virginia state licensure for teaching. The license is conferred by the Virginia Department of Education, and the commission of a felony, or a misdemeanor involving children and/or drugs, may result in the denial of issuance of the license. If you have questions or concerns about this, contact the Director of Teacher Preparation, Dr. Marsha Sprague.

Graduate Assistantships

Graduate assistants are employed to perform research and/or administrative activities as directed by graduate faculty within the department. The position requires a weekly time commitment and is awarded on a competitive basis. To qualify, a student must be a degree-seeking student with no limits or provisions, and be enrolled in 6 to 9 graduate credit hours in the semester of the award. Refer to page 33 for more information.

Five-Year Master of Arts in Teaching with Licensure Program

This five-year program leads to both a baccalaureate degree and a Master of Arts in Teaching. At the end of four years of study a student earns a bachelor's degree. Based on the endorsement area chosen, the student enrolls in courses to teach at the elementary or secondary level. In the spring semester of the fifth year, the student is involved in a 12-week full-time teaching internship in the public schools, and receives supervision from knowledgeable teaching professionals. Upon completion of the program, a student earns a Master of Arts in Teaching degree and a license to teach in the Commonwealth of Virginia. This master's degree program is for those students who wish to become successful and effective teachers.

Admission and Program Requirements

Admission

Criteria for student admission into a five-year program:

a) Undergraduate cumulative GPA of 3.0 or higher.
b) Submit one of the following exam scores:
   i) A minimum SAT Score of 1100 with a minimum of 530 in the verbal and quantitative sections (must be less than five years old); **OR**
   ii) ACT Score of a composite score of 24, with the ACT math score no less than 22, and an English plus Reading score no less than 46; **OR**
   iii) Praxis I test results which show a minimum composite score of 532 from the Reading, Writing, and Mathematics subtests.
c) Two letters of recommendation. One must be from a faculty member in the major who has taught the student in a major course.
d) A one-page typed essay describing the applicant's purpose and strengths for entering the teaching profession.
e) Students apply for admission to a five-year program by February 1st of the junior year.

Program Requirements

a) To continue in the five-year program, a student must maintain a 3.0 GPA, and remain in good standing by earning a grade of ***B-*** or better in any graduate course taken while in the undergraduate status.
b) If an undergraduate student in a five-year program earns a single grade of ***F*** or two grades of ***C+*** or lower in a graduate level course(s), that student will not be allowed to continue in the five-year program and the offer of admission to the graduate program will be rescinded.
c) Upon completion of the normal requirements in his or her respective undergraduate program, a baccalaureate degree will be awarded to the student.

Graduate Course Hours

Graduate credit hours taken as a five-year MAT **undergraduate** are subject to the following requirements:

a) A maximum of nine hours of credit will be allowed while classified as an undergraduate.
b) All courses must be approved by the student's advisor.
c) The student will be held to the same standards in these classes as any other graduate student.
d) To continue to take graduate courses as an undergraduate, a student must complete each graduate course with a grade of ***B-*** or better.

e) Six graduate credit hours will count toward the 120 hours required for an undergraduate degree and will not directly count toward the M.A.T. degree.

f) Should the five-year student take nine graduate credit hours during the senior year, one three-credit graduate course will be transferred to the graduate transcript once the baccalaureate degree is earned.

Course of Study

a) The five-year student who takes **six** graduate credit hours while in undergraduate status will enroll in nine graduate credits during the summer terms, 12 graduate credits fall semester, and nine graduate credits spring semester (see Example A below).

b) The five-year student who takes **nine** graduate credit hours (by permission) while in undergraduate status will have three graduate credit hours moved to the graduate transcript. The student will enroll in nine graduate credits during fall and spring semesters of the senior year (see Example B below).

c) The number of credit hours on the graduate transcript must total at least 30 overall.

d) A student accepted into the five-year program is required to follow the course of study as shown below in order to complete the curriculum within five years.

Examples of Five-year Program Course of Study

Example A: Five-year student takes **six** graduate credit hours while in undergraduate status

Undergraduate Status

6 credits	Graduate Courses taken in senior year
114 credits	Undergraduate Courses
120 credits	Total

Graduate Status

9 credits	Summer
12 credits	Fall
9 credits	Spring
30 credits	Total for M.A.T.

Example B: Five-year student takes **nine** graduate credit hours while in undergraduate status

Undergraduate Status

9 credits	Graduate credits taken in senior year with permission (3 credits to be moved to Graduate Transcript)
114 credits	Undergraduate Courses
123 credits	Total

Graduate Status

3 credits	Graduate credits transferred from undergraduate transcript
9 credits	Summer
9 credits	Fall
9 credits	Spring
30 credits	Total for M.A.T.

Further information about this program may be found at **http://teacherprep.cnu.edu/year5.html**

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
ART PK - 12

GRADUATE COURSE REQUIREMENTS

ENGL 514	Critical Reading of Children's Literature	3
FNAR 534	Theory and Practice of Art Education	3
FNAR 589	Teaching Crafts	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
FNAR 535	Integrating the Visual Arts	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
FNAR 201	World Art in Context I	3
FNAR 202	World Art in Context II	3
FNAR 118	Design, Two Dimensional	3
FNAR 119	Design, Three Dimensional	3
FNAR 226	Crafts	3
FNAR 224	Painting I	3
FNAR 241	Ceramics I **OR**	3
FNAR 251	Sculpture I	3
FNAR 252	Printmaking I	3
FNAR 128	Visual Literacy Through Computer Generated Art	3
FNAR 121	Basic Drawing	3
FNAR 322	Figure Drawing	3
9 CREDITS	Upper-level Art History Electives	9

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
ART PK - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

ENGL 514	Critical Reading of Children's Literature	3
FNAR 534	Theory and Practice of Art Education	3
FNAR 589	Teaching Crafts	3

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
FNAR 535	Integrating the Visual Arts	3

FIFTH YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
FNAR 201	World Art in Context I	3
FNAR 202	World Art in Context II	3
FNAR 118	Design, Two Dimensional	3
FNAR 119	Design, Three Dimensional	3
FNAR 224	Painting I	3
FNAR 241	Ceramics I **OR**	3
FNAR 251	Sculpture I	3
FNAR 252	Printmaking I	3
FNAR 128	Visual Literacy Through Computer Generated Art	3
FNAR 121	Basic Drawing	3
FNAR 322	Figure Drawing	3
FNAR 226	Crafts	3
FNAR 488	Senior Seminar in Studio Art	Credits Vary
9 CREDITS	Upper Level Art History Electives	9

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
ART PK - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

FNAR 534	Theory and Practice of Art Education	3
ENGL 522	Reading & Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	24

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
FNAR 201	World Art in Context I	3
FNAR 202	World Art in Context II	3
FNAR 118	Design, Two Dimensional	3
FNAR 119	Design, Three Dimensional	3
FNAR 224	Painting I	3
FNAR 241	Ceramics I **OR**	3
FNAR 251	Sculpture I	3
FNAR 252	Printmaking I	3
FNAR 128	Visual Literacy Through Computer Generated Art	3
FNAR 121	Basic Drawing	3
FNAR 322	Figure Drawing	3
FNAR 226	Crafts	3
9 CREDITS	Upper-level Art History Electives	9

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
BIOLOGY 6 - 12

GRADUATE COURSE REQUIREMENTS

8 HOURS FROM THE FOLLOWING ELECTIVES:

ENVS 518	Biological Conversation: Theory & Practice	4
ENVS 522	Summer Field Studies	2
ENVS 530	Biogeography	3
ENVS 532, 532 L	Wetlands Ecology and Lab	4
ENVS 536, 536L	Terrestrial Ecology and Lab	4
ENVS 540, 540L	Environmental Microbiology and Lab	4
ENVS 550	Global Change	3
ENVS 590	Topical Seminars in Environmental Science	1 - 4
ENVS 595	Advanced Topics in Environmental Science	1 - 4

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
BIOL 538	Apprenticeship in Teaching Biology	4

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Lab	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
BIOL 151, 151L	General Zoology & Lab	4
BIOL 152,152L	General Botany & Lab	4
BIOL 201, 201L	Molecular and Cellular Biology & Lab	4
BIOL 202, 202L	Evolution and Ecology & Lab	4

(Continued on next page)

Required:

BIOL 313	Genetics	3
BIOL 407, 407L	General Ecology & Lab	4
15 CREDITS	Biology Electives above 100-level	15

12 of these credits must be at 300-/400-level and have laboratory components
Recommended for all secondary biology teachers:
BIOL 215 Biological Evolution
BIOL 314/314L Human Anatomy & Physiology & Lab **OR**
BIOL 420/420L Animal Physiology & Lab

Support Courses:

CHEM 121, 121L	General Chemistry I & Lab	5
CHEM 122, 122L	General Chemistry II & Lab	5
CHEM 321, 321L	Organic Chemistry I & Lab	5
CHEM 322, 322L	Organic Chemistry II & Lab	5
PHYS 151, 151L	Intermediate Physics & Lab * **Preferred**	4
PHYS 152, 152L	Intermediate Physics & Lab	4
OR		
PHYS 201, 201L	General Physics & Lab	4
PHYS 202, 202L	General Physics & Lab	4
MATH 125 & 130 or higher	Mathematics Electives	6

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
BIOLOGY 6 - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR
8 HOURS FROM THE FOLLOWING ELECTIVES:
(Select six credits; two credits of ENVS electives will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

ENVS 518	Biological Conservation: Theory & Practice	4
ENVS 522	Summer Field Studies	2
ENVS 530	Biogeography	3
ENVS 532, 532L	Wetlands Ecology and Lab	4
ENVS 536, 536L	Terrestrial Ecology and Lab	4
ENVS 540, 540L	Environmental Microbiology and Lab	4
ENVS 550	Global Change	3
ENVS 590	Topical Seminars in Environmental Science	1 - 4
ENVS 595	Advanced Topics in Environmental Science	1 - 4

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management & Discipline	3
BIOL 538	Apprenticeship in Teaching Biology	4

FIFTH YEAR - FALL

ENGL 522	Reading & Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
2 Credits	ENVS Elective from Senior Year Courses if not taken Senior Year	(2)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teacher	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
PSYC 312	Educational Psychology	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
CPSC 110	Introduction to Computing	3
BIOL 107, 108, 109L	General Biology I and II and Lab **OR**	7
BIOL 151, 151L	General Zoology and Lab	4
BIOL 152, 152L	General Botany and Lab	4
BIOL 201, 201L	Molecular and Cellular Biology	4

(Continued on next page)

Required:

BIOL 313	Genetics	3
BIOL 407, 407L	General Ecology & Lab	4
BIOL 491W	Senior Seminar	1
15 CREDITS	Biology Electives above 100-level	15

12 of these credits must be at 300-/400-level and have laboratory components
Recommended for all secondary biology teachers:
BIOL 215 Biological Evolution
BIOL 314/314L Human Anatomy & Physiology & Lab **OR**
BIOL 420/420L Animal Physiology & Lab

Support Courses:

CHEM 121* 121L*, 122*, 122L*	General Chemistry I, II & Lab	10
CHEM 321, 321L, 322, 322L	Organic Chemistry I, II & Lab	10

Choose from one of the following:

PHYS 151, 151L, 152, 152L	Intermediate Physics & Lab*** Preferred**	8
OR		
PHYS 201, 201L, 202, 202L	General Physics & Lab	8
MATH 125 & 130 or higher	Mathematics Electives	6

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
BIOLOGY 6 - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	21

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
PSYC 312	Educational Psychology	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
CPSC 110	Introduction to Computing	3
BIOL 107, 108, 109L	General Biology I and II & Lab	7
BIOL 151, 151L	General Zoology & Lab	4
BIOL 152, 152L	General Botany & Lab	4
BIOL 201, 201L	Molecular and Cellular Biology & Lab	4
BIOL 202, 202L	Evolution and Ecology & Lab	4
BIOL 313	Genetics	3
BIOL 407, 407L	General Ecology & Lab	4
BIOL 491W	Biology Seminar	1
BIOL _____	Biology Electives above 100-level	15

12 of these credits must be at 300-/400-level and have laboratory components
Recommended for all secondary biology teachers:
BIOL 215-Evolution
BIOL 314/314L Human Anatomy & Physiology & Lab **OR**
BIOL 420/420L Animal Physiology & Lab

Support Courses:

CHEM 121*, 121L*, 122*, 122L*	General Chemistry I & II, and Lab	10

Choose from one of the following:

PHYS 151, 151L, 152, 152L	Intermediate Physics & Lab * **Preferred**	8
OR		
PHYS 201, 201L, 202, 202L	General Physics & Lab	8
MATH 125 & 130 or higher	Mathematics Electives	6

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
COMPUTER SCIENCE 6-12

GRADUATE COURSE REQUIREMENTS

CPSC 501	Software System Design and Implementation	3
CPSC ____	Graduate Elective (see pages 90-91)	3
CPSC ____	Graduate Elective (see pages 90-91)	3

FIFTH YEAR - SUMMER

TCHG 516m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
CPSC 502	Communications I	3

FIFTH YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
MATH 140	Calculus & Analytic Geometry	4
MATH 240	Intermediate Calculus	4
MATH 235	Applied Matrix Techniques **OR**	3
MATH 260	Linear Algebra	3
ENGR 213	Discrete Structures for Computer Applications.	3
CPEN 214	Digital Logic Design	3
PHYS 201 & 201L	General Physics & Lab	4
PHYS 202 & 202L	General Physics & Lab	4
CPSC 110	Introduction to Computing	3
CPSC 270	Data and File Structures	3
CPSC 330	Computer Organization	3
CPEN 371W	Computer Ethics	2
CPSC 410	Operating Systems I	3
CPSC 420	Algorithms	3

(Continue on next page)

Support Courses in Computer Science:

MATH 240	Intermediate Calculus	4
ENGR 213	Discrete Structures for Computer Applications	3
CPEN 214	Digital Logic Design	3
PHYS 341	Design and Analysis of Experiments	3

Major Courses in Computer Science:

CPSC 360	Programming Language Concepts	3
CPSC 270	Data and File Structures	3
CPSC 410	Operating Systems	3
CPSC 420	Algorithms	3
CPSC 330	Computer Organization **OR**	3
CPEN 414	Computer Architecture	3

Select three from:

CPSC 425, 427, 440, 450, 460, 470, 471, 480, 485, 495	Courses	9
MATH 380	Numerical Analysis I	3
PHYS 421, 441	System Design Lab, Modeling & Simulation	6

with courses number 495 and above used no more than twice

PCSE 499W	Independent Study in Applied Physics & Computer Science	Credit Varies

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
COMPUTER SCIENCE 6-12

GRADUATE COURSE REQUIREMENTS
(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

SENIOR YEAR

CPSC 501	Software System Design and Implementation	3
CPSC ____	Graduate Elective (see pages 90-91)	3
CPSC ____	Graduate Elective (see pages 90-91)	3

FIFTH YEAR - SUMMER

TCHG 516m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
CPSC 502	Communications I	3

FIFTH YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism, Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	3 (3)

120 HOURS *Field Experience*

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3

Core Courses:

CPEN 371W	Computer Ethics	2
CPSC 125, 150, 150L-250, 250L	Computer Science Courses	11
MATH 140	Calculus and Analytic Geometry	4
PHYS 151, 151L-152,152L	Intermediate Physics & Lab OR	8
PHYS 201, 201L-202, 202L	General Physics & Lab	
PHYS 340	Methods of Theoretical physics **OR**	**3**
MATH 235	Applied Matrix Techniques **OR**	**3**
MATH 260	Linear Algebra	3

(Continued on next page)

Support Courses in Computer Science:

MATH 240	Intermediate Calculus	4
ENGR 213	Discrete Structures for Computer Applications	3
CPEN 214	Digital Logic Design	3
PHYS 341	Design and Analysis of Experiments	3

Major Courses in Computer Science:

CPSC 360	Programming Language Concepts	3
CPSC 270	Data and File Structures	3
CPSC 410	Operating Systems	3
CPSC 420	Algorithms	3
CPSC 330	Computer Organization **OR**	3
CPEN 414	Computer Architecture	3

Select three from:

CPSC 425, 427, 440, 450, 460, 470, 471, 480, 485, 495	Courses	9
MATH 380	Numerical Analysis I	3
PHYS 421, 441	System Design Lab, Modeling & Simulation	6

with courses number 495 and above used no more than twice

PCSE 499W	Independent Study in Applied Physics and Computer Science	Credit varies

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
COMPUTER SCIENCE 6 - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR: SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR: FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR: SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	21

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
MATH 140	Calculus & Analytic Geometry	4
MATH 240	Intermediate Calculus	4
MATH 235	Applied Matrix Techniques **OR**	3
MATH 260	Linear Algebra	3
ENGR 213	Discrete Structures for Computer Applications.	3
CPEN 214	Digital Logic Design	3
CPEN 371W	Computer Ethics	2
PHYS 201, 201L	General Physics & Lab	4
PHYS 202, 202L	General Physics & Lab	4
CPSC 110	Introduction to Computing	3
CPSC 270	Data and File Structures	3
CPSC 330	Computer Organization	3
CPSC 410	Operating Systems I	3
CPSC 420	Algorithms	3

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
ELEMENTARY PK - 6

GRADUATE COURSE REQUIREMENTS

ENGL 532	Language Varieties in American Schools	3
MATH 570	The Study of Mathematics	3
ENGL 514	Critical Reading of Children's Literature	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
PSYC 535	Exceptional Learner	3

PROFESSIONAL YEAR - FALL

ENGL 521	Teaching Composition	3
PSYC 521	Reading Acquisition and Development	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

(Degree in Liberal Arts or Science required)

6 CREDITS	English	6
6 CREDITS	History/Government	6
6 CREDITS	Mathematics	6
6 CREDITS	Science	6
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
NSCI 310	Exploring Science	4
ENGL 310	Introduction to Linguistics **OR**	3
ENGL 430	The Structure of English	3
GEOG 201	Introduction to Geography	3

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
ELEMENTARY PK - 6

GRADUATE COURSE REQUIREMENTS
SENIOR YEAR
(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

ENGL 532	Language Varieties in American Schools	3
MATH 570	The Study of Mathematics	3
ENGL 514	Critical Reading of Children's Literature	3

FIFTH YEAR - SUMMER

TCHG 516e	Curriculum and Instruction	3
PSYC 521	Reading Acquisition and Development	3
TCHG 543	Classroom Management and Discipline	3

FIFTH YEAR - FALL

ENGL 521	Teaching Composition	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

CPSC 110	Introduction to Computing	3
MATH 125	Elementary Statistics	3
ENGL 123; ULLC 223	First & Second-Year Writing Seminar	6
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
HIST 111	The Ancient & Medieval World	3
GOVT 101	Power and Politics in America	3
7 CREDITS	Two Science Courses with one Lab	7
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
HIST 121	Early America to the Civil War	3
GEOG 201	Introduction to Geography	3
PSYC 312	Educational Psychology	3
ENGL 314	Children's Literature	3
NSCI 310	Exploring Science Concepts	3
MATH 308	Exploring Mathematics Concepts	3
ENGL 310	Introduction to Linguistics OR	3
ENGL 430	The Structure of English	3

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
ELEMENTARY PK - 6

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516e	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
PSYC 535	Exceptional Learner	3

PROFESSIONAL YEAR - FALL

ENGL 521	Teaching Composition	3
PSYC 521	Reading Acquisition and Development	3
MATH 570	The Study of Mathematics	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	27

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

(Degree in Liberal Arts or Science Required)

6 CREDITS	English	6
6 CREDITS	History/Government	6
6 CREDITS	Mathematics	6
6 CREDITS	Science	6
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
NSCI 310	Exploring Science	4
ENGL 314W	Children's Literature	3
ENGL 310	Introduction to Linguistics **OR**	3
ENGL 430	The Structure of English	3
GEOG 201	Introduction to Geography	3

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
ENGLISH 6 - 12

GRADUATE COURSE REQUIREMENTS

ENGL 532	Language Varieties in American Schools	3
ENGL 512	Reading Multicultural Literature	3
ENGL 521	Teaching Composition	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
ENGL 501	Teaching Literature	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
ENGL 208	Reading Literature	3
ENGL 308W	Literature, Theory and Culture	3
ENGL 309	Prose Writing	3
ENGL 311	Teaching English to Speakers of Other Languages	3
ENGL 315	Adolescent Literature	3
6 CREDITS	Two (2) Courses in American Literature	6
6 CREDITS	Two (2) Courses in British Literature	6
ENGL 421	Shakespeare I	3
ENGL 430	The Structure of English	3
3 CREDITS	One (1) Course in World Literature	3

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
ENGLISH 6 -12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

ENGL 512	Reading Multicultural Literature	3
ENGL 521	Teaching Composition	3
ENGL 532	Language Varieties in American Schools	3

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
ENGL 501	Teaching Literature	3

FIFTH YEAR - FALL

ENGL 522	Reading & Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
ENGL 208	Reading Literature	3
ENGL 308W	Literature, Theory, and Culture WI	3
ENGL 309W	Prose Writing	3
ENGL 311	Teaching English to Speakers of Other Languages	3
ENGL 315	Adolescent Literature	3

(Continued on next page)

Choose one of the following two:

ENGL 341	American Literature to 1850	3
ENGL 342	American Literature 1850-1920	3

Choose one of the following two:

ENGL 343	American Literatures 1920-present	3
ENGL 410	Southern American Literature	3

Choose one of the following two:

ENGL 370	Early British Literature	3
ENGL 372	British Literature:17th & 18th Century	3

Choose one of the following two:

ENGL 374	British Literature: 19th Century	3
ENGL 376	British Literature: 20th Century to Present	3

Choose one of the following four:

ENGL 321	Literature of the Ancient World	3
ENGL 322	Pre-Modern World Literature	3
ENGL 325	Contemporary World Literature	3
ENGL 425	Cultural Studies in World Literature	3

Other required support courses:

ENGL 421	Shakespeare I	3
ENGL 430	The Structure of English	3
ENGL 490W	Senior Seminar	3

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
ENGLISH 6 - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	21

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
ENGL 203	Reading Literature	3
ENGL 308W	Literature, Theory, and Culture WI	3
ENGL 309	Prose Writing	3
ENGL 311	Language and Teaching	3
ENGL 315	Adolescent Literature	3
6 CREDITS	Two (2) Courses in American Literature	6
6 CREDITS	Two (2) Courses in British Literature	6
3 CREDITS	One (1) Course in World Literature	3
ENGL 421	Shakespeare	3
ENGL 430	Advanced English Grammar	3

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
FRENCH PK - 12

GRADUATE COURSE REQUIREMENTS

ENGL 512	Reading Multicultural Literature	3
ENGL 532	Language Varieties in American Schools	3
FREN 503	Advanced Writing and Stylistics	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
FREN 538	Research in Foreign Language Teaching	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
FREN 101	Elementary French I	3
FREN 102	Elementary French II	3
FREN 201	Intermediate French I	3
FREN 202	Intermediate French II	3
FREN 301	Grammar and Composition **OR**	
FREN 303W	Process Writing-WI	3

Choose one of the following:

FREN 302	Practical Conversations	3
FREN 304	Conversational Approach to Society and Institutions	3
FREN 308	Conversation via Cinema	3

(Continued on next page)

Required Courses:

FREN 310	Practical French Phonetics	3
FREN 311	French Civilization **OR**	3
FREN 312	Contemporary France	3
One	300-400 level FREN elective	3
FREN 351	Studies in the Early Modern Era	3
FREN 353	Francophone Literature and Culture	3
MLAN 308	Cross-Cultural Awareness	3
MLAN 338	Teaching Modern Languages	3

Four semesters of a language different from the one of concentration, or two semesters of a language other than the one of concentration and the following courses:

LANG 101
LANG 102
LANG 201
LANG 202
OR
LANG 101
LANG 102
One additional French elective at the 300-level
MLAN 205 or 206

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
FRENCH PK - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

ENGL 512	Reading Multicultural Literature	3
ENGL 532	Language Varieties in American Schools	3
FREN 503	Advanced Writing and Stylistics	3

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
FREN 538	Research in Foreign Language Teaching	3

FIFTH YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
FREN101	Elementary French I	3
FREN 102	Elementary French II	3
FREN 201	Intermediate French I	3
FREN 202	Intermediate French II	3
FREN 310	Practical French Phonetics	3
FREN 351	Studies in the Early Modern Era	3
FREN 352	Studies in the Modern Era	3
MLAN 308	Cross-Cultural Awareness	3
MLAN 338	Teaching Modern Languages	3

(Continue on next page)

Choose one of the following two:

FREN 301	Grammar and Composition	3
FREN 303W	Process Writing	3

Choose one of the following:

FREN 302	Practical Conversations	3
FREN 304	Conversational Approach to Society and Institutions	3
FREN 308	Conversation via Cinema	3

Required Courses:

FREN 310	Practical French Phonetics	3
FREN 311	French Civilization **OR**	3
FREN 312	Contemporary France	3

One Additional Elective Required at 300-400 Level 3

Four semesters of a language different from the one of concentration, or two semesters of a language other than the one of concentration, one additional French elective at the 300-level, and either MLAN 205G or MLAN 206G.

LANG 101
LANG 102
LANG 201
LANG 202
OR
LANG 101
LANG 102
One additional French elective at the 300-level
MLAN 205 or 206

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
FRENCH PK - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	21

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
FREN 101	Elementary French I	3
FREN 102	Elementary French II	3
FREN 201	Intermediate French I	3
FREN 202	Intermediate French II	3
FREN 301	Grammar and Composition **OR**	3
FREN 303W	Process Writing	3

Choose one of the following:

FREN 302	Practical Conversations	3
FREN 304	Conversational Approach to Society and Institutions	3
FREN 308	Conversation via Cinema	3

Required Courses:

FREN 310	Practical French Phonetics	3
FREN 311	French Civilization **OR**	3
FREN 312	Contemporary France	3

(Continued on next page)

FREN 351	Studies in the Early Modern Era	3
FREN 352	Studies in the Modern Era	3
MLAN 308	Cross-Cultural Awareness	3
MLAN 338	Teaching Modern Languages	3

One Additional Elective Required at 300-400 Level 3

Four semesters of a language different from the once of concentration, or two semesters of a language other than the one of concentration and the following courses:

LANG 101
LANG 102
LANG 201
LANG 202
OR
LANG 101
LANG 102
One additional French elective at the 300-level
MLAN 205 or 206

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
HISTORY & SOCIAL SCIENCE 6 - 12

GRADUATE COURSE REQUIREMENTS

HIST ____	500 Level History Area I	3
HIST ____	500 Level History Area II	3
GOVT 570	Methods for Teaching Social Studies	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
HIST ____	500 Level History Area III	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Student must have B.A./B.S. in History or Political Science
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3

Student with B.A./B.S. in Political Science must have:

HIST 111	The Ancient and Medieval World	3
HIST 112	The Modern World	3
HIST 121	Early America to the Civil War	3
HIST 122	Modern America: Reconstruction to Global Power	3
HIST 390W	Historical Methods and Historiography	3
HIST __ __	Two 300/400 level History courses	6
ECON 201 or 202	Principles of Economics (201 preferred)	3
GEOG 201; 202	Introduction to Geography I and II	6

Student with B.A.in History must have:

GOVT 100	Political Thought and Society **OR**	3
GOVT 101	Power and Politics in America	3
GOVT 202	State and Local Government	3
GOVT 215	International & Comparative Politics	3
GOVT __ __	Two 300/400 level Government courses	6
ECON 201 or 202	Principles of Economics (201 preferred)	3
GEOG 201; 202	Introduction to Geography I and II	6

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
HISTORY & SOCIAL SCIENCE 6 - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

HIST ____	500 Level History Area I	3
HIST ____	500 Level History Area II	3
GOVT 570	Methods for Teaching Social Studies	3

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management & Discipline	3
HIST ____	500 Level History Area III	3

FIFTH YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

Student must earn a B.A./B.S. in History or Political Science

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3

Student with B.A./B.S. in Political Science must have:

HIST 111	The Ancient and Medieval World	3
HIST 112	The Modern World	3
HIST 121	Early America to the Civil War	3
HIST 122	Modern America: Reconstruction to Global Power	3
HIST 390W	Historical Methods and Historiograph	3
HIST __ __	Two 300/400 level History courses	6
ECON 201 or 202	Principles of Economics (201 preferred)	3
GEOG 201; 202	Introduction to Geography I and II	6

Student with B.A.in History must have:

GOVT 100	Political Thought and Society **OR**	3
GOVT 101	Power and Politics in America	3
GOVT 202	State and Local Government	3
GOVT 215	International & Comparative Politics	3
GOVT __ __	Two 300/400 level Government courses	6
ECON 201 or 202	Principles of Economics (201 preferred)	3
GEOG 201; 202	Introduction to Geography I and II	6

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
HISTORY & SOCIAL SCIENCE 6 - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	21

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted
Student must have B.A./B.S. in History or Political Science

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3

Student with B.A./B.S. in Political Science must have:

HIST 111	The Ancient and Medieval World	3
HIST 112	The Modern World	3
HIST 121	Early America to the Civil War	3
HIST 122	Modern America: Reconstruction to Global Power	3
HIST 390W	Historical Methods and Historiography	3
HIST __ __	Two 300/400 level History courses	6
ECON 201 or 202	Principles of Economics (201 preferred)	3
GEOG 201; 202	Introduction to Geography I and II	6

Student with B.A. in History must have:

GOVT 100	Political Thought and Society **OR**	3
GOVT 101	Power and Politics in America	3
GOVT 202	State and Local Government	3
GOVT 215	International & Comparative Politics	3
GOVT __ __	Two 300/400 level Government courses	6
ECON 201 or 202	Principles of Economics (201 preferred)	3
GEOG 201; 202	Introduction to Geography I and II	6

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
MATHEMATICS 6 - 12

GRADUATE COURSE REQUIREMENTS

MATH 570	The Study of Mathematics	3
MATH 578	Elementary Geometry from an Advanced Viewpoint	3
MATH 538	Apprenticeship in Teaching Mathematics	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MATH 596	Curriculum and Assessment in Secondary Secondary Mathematics	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
MATH 140	Calculus and Analytic Geometry	4
MATH 240	Intermediate Calculus	4
MATH 250	Multivariable Calculus	3
MATH 260	Linear Algebra	3
MATH 310	Proofs and Discrete Mathematics	3
MATH 335	Applied Probability	3
MATH 360	Advanced Calculus	3
MATH 370	Abstract Algebra	3
MATH __ __	Two 300/400 level Mathematics courses	6
MATH __	One 400 level Mathematics course	3
CPSC 250 & 250L	Computers and Programming II & Lab	4

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
MATHEMATICS 6 - 12

GRADUATE COURSE REQUIREMENTS
SENIOR YEAR
(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

MATH 570	The Study of Mathematics	3
MATH 578	Elementary Geometry from an Advanced Viewpoint	3
MATH 538	Apprenticeship in Teaching Mathematics	3

FIFTH YEAR: SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MATH 596	Curriculum and Assessment in Secondary Mathematics	3

FIFTH YEAR: FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR: SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
MATH 140	Calculus and Analytic Geometry	4
MATH 240	Intermediate Calculus	4
MATH 250	Multivariable Calculus	3
MATH 260	Linear Algebra	3
MATH 310	Proofs and Discrete Mathematics	3
MATH 335	Applied Probability	3
MATH 360	Advanced Calculus	3
MATH 370	Abstract Algebra	3

(Continued on next page)

MATH __	300/400 level Mathematics (excluding 499)	3 or 4
MATH __	300/400 level Mathematics (excluding 499)	3 or 4
MATH __	400 level Mathematics course (excluding 499)	3 or 4
CPSC 250 & 250L	Computers and Programming II and Lab	3 and 1

Recommended for BA degree:

PHYS 201/201L	General Physics and Lab	3 and 1
PHYS 202	General Physics	3

Required for a BS degree:

PHYS 201/201L	General Physics and Lab	3 and 1
PHYS 202/202L	General Physics and Lab	3 and 1

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
MATHEMATICS 6 - 12

GRADUATE COURSE REQUIREMENTS

MATH 570	The Study of Mathematics	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	24

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
MATH 140	Calculus and Analytic Geometry	4
MATH 250	Multivariable Calculus	3
MATH 260	Linear Algebra	3
MATH 310	Proofs and Discrete Mathematics	3
MATH 335	Applied Probability	3
MATH 360	Advanced Calculus	3
MATH 370	Abstract Algebra	3
MATH __ __	Two 300/400 level Mathematics courses	6
MATH __	One 400 level Mathematics course	3
CPSC 250 & 250L	Computers & Programming II & Lab	4

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
MUSIC - CHORAL PK - 12

GRADUATE COURSE REQUIREMENTS

MUSC 520	Choral Literature and Conducting	3
MUSC 596	Vocal Pedagogy	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MUSC 580	Jazz Ensemble Techniques	1

PROFESSIONAL YEAR - FALL

MUSC 537	Music in the Elementary Schools	2
MUSC 515	Orchestration	1
PSYC 535	Exceptional Learner	3
APP COND 533	Applied Choral Conducting **OR**	3
MUSC 538	Foundations of Musical Growth & Development	
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

MUSC 510	Measurement & Evaluation in Music Education	2
CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3

Applied Music and Ensembles

APP MUSC 131-132, 231-232, 331-332, 431-432 (Senior Recital)	16
8 Credits of MUSC 105, 106 or 117	8
Non-credits of MUSC 012	8
Music 115-116 and 215-216 or four (4) semesters of APP PIAN 130; successful completion of the piano proficiency for choral music education majors	4

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Music Theory and History

MUSC 141	Critical Listening for Music Majors	2
MUSC 209-210	Elementary Ear Training	2
MUSC 309-310	Advanced Ear Training	2
MUSC 211-212	The Tonal System-Tonal Harmony & Voice-Leading	6
MUSC 311-312	Chromatic Harmony-Extended Tonal Techniques & Atonality	6
MUSC 303-304	History of Western Music	6
MUSC 306	WI:Global Transformations:“World Music” and the “World”	3

Music Techniques

MUSC 220	Brass Instrument Techniques	1
MUSC 230	Woodwind Instrument Techniques	1
MUSC 240	Percussion Techniques	1
MUSC 250	String Instrument Techniques	1
MUSC 265-266	Foreign Language Diction I & II	2
MUSC 200	Music Technology	1

Conducting and Literature

MUSC 314	Principles of Choral Conducting	3

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
MUSIC - CHORAL PK - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

MUSC 520	Choral Literature and Conducting	3
MUSC 596	Vocal Pedagogy	3

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MUSC 580	Jazz Ensemble Techniques	1

FIFTH YEAR - FALL

MUSC 537	Music in Elementary Schools	2
MUSC 515	Orchestration	1
PSYC 535	Exceptional Learner	3
APP COND 533	Applied Choral Conducting **OR**	3
MUSC 538	Foundations of Musical Growth & Development	
SOCL 501	Multiculturalism,Diversity and Education **OR**	3
	Graduate Course Elective	
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

MUSC 510	Measurement & Evaluation in Music Education	2
CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
SOCL 314	Education, Culture and Society	3

Applied Music and Ensembles

APP MUSC 131-132, 231-232, 331-332, 431-432 (Senior Recital)	16
8 Credits of MUSC 105, 106, or 117	8
Non-credits of MUSC 012	8
MUSC 115-116 and 215-216 or four (4) semesters of APP PIAN 130; successful completion of the piano proficiency for choral music education majors	4

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Music Theory and History

MUSC 141	Critical Listening for Music Majors	2
MUSC 209-210	Elementary Ear Training	2
MUSC 309-310	Advanced Ear Training	2
MUSC 211-212	The Tonal System-Tonal Harmony & Voice-Leading	6
MUSC 311-312	Chromatic Harmony-Extended Tonal Techniques & Atonality	6
MUSC 303-304	History of Western Music	6
MUSC 306	WI:Global Transformations:“World Music” and the “World”	3

Music Techniques

MUSC 220	Brass Instrument Techniques	1
MUSC 230	Woodwind Instrument Techniques	1
MUSC 240	Percussion Techniques	1
MUSC 250	String Instrument Techniques	1
MUSC 265-266	Foreign Language Diction I & II	2
MUSC 200	Music Technology	1

Conducting and Literature

MUSC 314	Principles of Choral Conducting	3

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
MUSIC - CHORAL PK - 12

GRADUATE COURSE REQUIREMENTS

MUSC 520	Choral Literature and Conducting	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MUSC 580	Jazz Ensemble Techniques	1

PROFESSIONAL YEAR - FALL

PSYC 535	Exceptional Learner	3
MUSC 537	Music in the Elementary Schools	2
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
MUSC 510	Measurement and Evaluation in Music Education	2
	TOTAL GRADUATE COURSE HOURS	26

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Society and Society	3
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
Applied Music and Ensembles		
APP MUSC 131-132, 231-232, 331-332, 431-432 (Senior Recital)		16
8 Credits of MUSC 105, 106 or 117		8
Non-Credits of MUSC 012		8
MUSC 115-116 and 215-216 or four(4) semesters of APP PIAN 130; successful completion of the piano proficiency for choral music education majors		4
Music Theory and History		
MUSC 209-210	Elementary Ear Training	2
MUSC 309-310	Advanced Ear Training	2
MUSC 211-212	The Tonal System-Tonal Harmony & Voice-Leading	6
MUSC 311-312	Chromatic Harmony-Extended Tonal Techniques & Atonality	6
MUSC 303-304	History of Western Music	6
Music Techniques		
MUSC 220	Brass Instrument Techniques	1
MUSC 230	Woodwind Instrument Techniques	1
MUSC 240	Percussion Techniques	1
MUSC 250	String Instrument Techniques	1
MUSC 265-266	Foreign Language Diction I & II	2
MUSC 200	Music Technology	1
MUSC 596	Vocal Pedagogy	3
Conducting and Literature		
MUSC 314	Principles of Choral Conducting	3
MUSC 537	Music in the Elementary Schools	2

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
MUSIC - INSTRUMENTAL PK - 12

GRADUATE COURSE REQUIREMENTS

MUSC 510	Measurement & Evaluation in Music Education	2
MUSC 530/540	Wind/Orchestral Literature & Conducting	3
MUSC 570	Marching Band Techniques	1

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MUSC 550	Secondary Instrumental Music Methods	2
MUSC 580	Jazz Ensemble Techniques	1

PROFESSIONAL YEAR - FALL

MUSC 537	Music in the Elementary Schools	2
MUSC 515	Orchestration	1
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
APP COND 533	Applied Wind/Orchestral Conducting **OR**	3
MUSC 538	Foundations of Musical Growth & Development	
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3

Applied Music and Ensembles

APP MUSC 131-132, 231-232, 33-332, 431-432 (Senior Recital)	16
Credits of Band and/or Orchestra	8
Non-Credits of MUSC 012	8
MUSC 115-116 and 215-216 or four (4) semesters of APP PIAN 130; successful completion of the piano proficiency for instrumental music education majors	4

(Continued on next page)

Music Theory and History

MUSC 141	Critical Listening for Music Majors	2
MUSC 209-210	Elementary Ear Training	2
MUSC 309-310	Advanced Ear Training	2
MUSC 306	WI:Global Transformations: “World Music” and the “World”	3
MUSC 211-212	The Tonal System-Tonal Harmony & Voice-Leading	6
MUSC 311-312	Chromatic Harmony-Extended Tonal Techniques & Atonality	6
MUSC 303-304	History of Western Music	6
MUSC 401W	Seminar in Music Bibliography-WI	1 or 3

Music Techniques

MUSC 220	Brass Instrument Techniques	1
MUSC 230	Woodwind Instrument Techniques	1
MUSC 240	Percussion Techniques	1
MUSC 250	String Instrument Techniques	1
MUSC 260	Voice Techniques	1
MUSC 200	Music Technology	1

Conducting and Literature

MUSC 316	Principles of Instrumental Conducting	3

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
MUSIC - INSTRUMENTAL PK - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

MUSC 510	Measurement & Evaluation in Music Education	2
MUSC 530/540	Wind/Orchestral Literature & Conducting	3
MUSC 570	Marching Band Techniques	1

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MUSC 550	Secondary Instrumental Music Methods	2
MUSC 580	Jazz Ensemble Techniques	1

FIFTH YEAR - FALL

MUSC 537	Music in Elementary Schools	2
MUSC 515	Orchestration	1
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
APP COND 533	Applied Wind/Orchestral Conducting **OR**	3
MUSC 538	Foundations of Musical Growth & Development	
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

Undergraduate Content and Support Course Requirements

MATH 125	Elementary Statistics	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
SOCL 314	Education, Culture and Society	3

Applied Music and Ensembles

APP MUSC 131-132, 231-232, 331-332 and 431-432 (Senior Recital)	16
Credits of band and/or orchestra	8
Non-credits of MUSC 012	8
MUSC 115-116 and 215-216 **OR** four semesters of APP PIAN 130;successful completion of the piano proficiency for instrumental music education majors	4

(Continued on next page)

Music Theory and History

MUSC 141	Critical Listening for Music Majors	2
MUSC 209-210	Elementary Ear Training	2
MUSC 309-310	Advanced Ear Training	2
MUSC 306	WI:Global Transformations: “World Music” and the “World”	3
MUSC 211-212	The Tonal System-Tonal Harmony & Voice-Leading	6
MUSC 303-304	History of Western Music	6
MUSC 311-312	Chromatic Harmony-Extended Tonal Techniques & Atonality	6
MUSC 401W	Seminar in Music Bibliography-WI	1 or 3

Music Techniques

MUSC 220	Brass Instrument Techniques	1
MUSC 230	Woodwind Instrument Techniques	1
MUSC 240	Percussion Techniques	1
MUSC 250	String Instrument Techniques	1
MUSC 260	Voice Techniques	1
MUSC 200	Music Technology	1

Conducting and Literature

MUSC 316	Principles of Instrumental Conducting	3

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
MUSIC - INSTRUMENTAL PK - 12

GRADUATE COURSE REQUIREMENTS

MUSC 530/540	Wind/Orchestral Literature and Conducting	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
MUSC 550	Secondary Instrumental Music Methods	2
MUSC 580	Jazz Ensemble Techniques	1

PROFESSIONAL YEAR - FALL

PSYC 535	Exceptional Learner	3
MUSC 515	Orchestration	1
MUSC 570	Marching Band Techniques	1
MUSC 537	Music in the Elementary Schools	2
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
MUSC 510	Measurement and Evaluation In Music Education	2
	TOTAL GRADUATE COURSE HOURS	30

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
Applied Music and Ensembles		
APP MUSC 131-132, 231-232, 331-332 and 431-432	(Senior Recital)	16
Credits of Band and/or Orchestra		8
Non-credits of MUSC 012		8
MUSC 115-116 and 215-216 or four (4) semesters of APP PIAN 130;successful completion of the piano proficiency for instrumental music education majors		4
Music Theory and History		
MUSC 141	Critical Listening for Music Majors	2
MUSC 209-210	Elementary Ear Training	2
MUSC 309-310	Advanced Ear Training	2
MUSC 211-212	The Tonal System-Tonal Harmony & Voice-Leading	6
MUSC 311-312	Chromatic Harmony-Extended Tonal Techniques & Atonality	6
MUSC 303-304	History of Western Music	6
MUSC 306	WI:Global Transformations:“World Music” & the “World”	3
MUSC 401W	Seminar in Music Bibliography-WI	1 or 3
Music Techniques		
MUSC 220	Brass Instrument Techniques	1
MUSC 230	Woodwind Instrument Techniques	1
MUSC 240	Percussion Techniques	1
MUSC 250	String Instrument Techniques	1
MUSC 260	Voice Techniques	3
MUSC 200	Music Technology	1
Conducting and Literature		
MUSC 316	Principles of Instrumental Conducting	3

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
PHYSICS 6 - 12

GRADUATE COURSE REQUIREMENTS

PHYS 501	Models of Dynamical Systems	3
PHYS 502	Quantum Physics	3
PHYS 504	Electromagnetic Theory	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
PHYS __	500 Level Physics Elective	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
CPEN 214	Digital Logic Design	3
CPEN 371W	Computer Ethics	2
CPSC 231 & 231L	Computer Programming II & Lab	4
ENGR 121	Engineering Design	3
ENGR 211 & 211L	Introduction to Electric Circuits & Electronics Lab	4
PHYS 201 & 201L	General Physics & Lab	4
PHYS 202 & 202L	General Physics & Lab	4
PHYS 351	Modern Physics	

(Continued on next page)

Two electives from the following:

CPEN 315 & 315L	Digital System Design & Lab	4
CPEN 422	Microprocessors	3
ENGR 212 & 212L	Electronics & Lab	4
PHYS 352	Device Physics	3
PHYS 421	System Design Lab	3
PHYS 431	Optical Physics	3
PHYS 441	Modeling and Simulation	3
MATH 440	Mathematical Modeling	3

Support Courses:

MATH 140	Calculus and Analytic Geometry	4
MATH 240	Intermediate Calculus	4
MATH 250	Multivariable Calculus	3
MATH 320	Ordinary Differential Equations	3

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
PHYSICS 6 - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

PHYS 501	Models of Dynamical Systems	3
PHYS 502	Quantum Physics	3
PHYS 504	Electromagnetic Theory	3

FIFTH YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3
PHYS __	500 Level Physics Elective	3

FIFTH YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
PSYC 312	Educational Psychology	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture & Society Lab	1
CPSC 110	Introduction to Computing	3

Core Courses:

CPEN 371 W	Computer Ethics WI	2
CPSC 125	Foundations of Computer Science	3
CPSC 150/L-250/L	Computers & Programming I & II and Labs	8
MATH 140	Calculus and Analytic Geometry	4
PHYS 201/L-202/L	General Physics and Lab	8
PHYS 340	Methods of Theoretical Physics	3

(Continue on next page)

Support Courses in Applied Physics:

ENGR 121	Engineering Design	3
MATH 240	Intermediate Calculus	4
MATH 250	Multivariable Calculus	3
MATH 320	Ordinary Differential Equations	3

Major Courses in Applied Physics:

ENGR 211, 211L	Intro. to Electric Circuits & Electronics, & Lab	4
CPEN 214	Digital Logic Design	3
PHYS 303	General Physics	3
PHYS 341	Design and Analysis of Experiments	3
PHYS 351	Modern Physics	3
PHYS 401	Models of Dynamical Systems	3
PHYS 404	Electromagnetism	3

Select two electives from the following:

CPEN 315, 315L	Digital Systems Design & Lab	4
CPEN 422	Microprocessors	3
ENGR 212, 212L	Electronics and Laboratory	4
PHYS 352	Device Physics	3
PHYS 402	Quantum Physics	3
PHYS 406	Thermodynamics	3
PHYS 421	System Design Lab (Data Acquisition)	3
PHYS 431	Optical Physics	3
PHYS 441	Modeling and Simulation **OR**	3
MATH 440	Mathematical Modeling	3

PCSE 499W	Independent Study in Applied Physics and Computer Science	Credits vary

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
PHYSICS 6 - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8

TOTAL GRADUATE COURSE HOURS	21

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
CPEN 214	Digital Logic Design	3
CPEN 371W	Computer Ethics	2
CPSC 250/L	Computer Programming II & Lab	4
ENGR 121	Engineering Design	3
ENGR 211 & 211L	Introduction to Electric Circuits & Electronics Lab	4
PHYS 201 & 201L	General Physics & Lab	4
PHYS 202 & 202L	General Physics & Lab	4
PHYS 351	Modern Physics	3

Two electives from the following:

CPEN 315 & 315L	Digital System Design & Lab	4
CPEN 422	Microprocessors	3
ENGR 212 & 212L	Electronics & Lab	4
PHYS 352	Device Physics	3
PHYS 421	System Design Lab	3
PHYS 431	Optical Physics	3
PHYS 441	Modeling and Simulation	3
MATH 440	Mathematical Modeling	3

Support Courses:

MATH 140	Calculus and Analytic Geometry	4
MATH 240	Intermediate Calculus	4
MATH 250	Multivariable Calculus	3
MATH 320	Ordinary Differential Equations	3

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
SPANISH PK - 12

GRADUATE COURSE REQUIREMENTS

ENGL 512	Reading Multicultural Literature	3
ENGL 532	Language Varieties in American Schools	3
SPAN 595	Advanced Topics in Spanish	3

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR** Graduate Course Elective	3
SPAN 538	Apprenticeship in Teaching	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
SPAN 101	Elementary Spanish I	3
SPAN 102	Elementary Spanish II	3
SPAN 201	Intermediate Spanish I	3
SPAN 202	Intermediate Spanish II	3
SPAN 301	Grammar & Composition **OR**	3
SPAN 303	WI Advanced Grammar & Composition	3
SPAN 302	Advanced Spanish Conversation **OR**	3
SPAN 304	Advanced Communication in Spanish **OR**	3
SPAN 308	Conversation via Cinema	3
SPAN 311	Spanish Civilization & Culture **OR**	3
SPAN 312	Spanish American Civilization & Culture	3
SPAN __ __	Six Credits of Spanish Electives	6
MLAN 308	Cross-Cultural Awareness	3
MLAN 338	Teaching Modern Languages	3
Choose three of the following four:		
SPAN 351	Introduction to Latin-American Literature I	3
SPAN 352	Introduction to Latin-American Literature II	3
SPAN 353	Introduction to Spanish Literature I	3
SPAN 354	Introduction to Spanish Literature II	3

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
SPANISH PK - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

ENGL 512	Reading Multicultural Literature	3
ENGL 532	Language Varieties in American Schools	3
SPAN 595	Advanced Topics in Spanish	3

FIFTH YEAR - SUMMER

SOCL 501	Multiculturalism, Diversity and Education	3
TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

FIFTH YEAR - FALL

SPAN 538	Apprenticeship in Teaching	3
ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
SPAN 101-102	Elementary Spanish I & II	3
SPAN 201-202	Intermediate Spanish I & II	3

Choose one of the following:

SPAN 301	Grammar and Composition	3
SPAN 303	WI Advanced Grammar and Composition	3

(Continued on next page)

Choose one of the following:

SPAN 302	Advanced Spanish Conversation	3
SPAN 304	Advanced Communication in Spanish	3
SPAN 308	Conversation via Cinema	3
SPAN 311	Spanish Civilization & Culture **OR**	3
SPAN 312	Spanish American Civilization & Culture	3

Choose one of the following:

SPAN 301	Grammar and Composition	3
SPAN 303	WI Advanced Grammar and Composition	3

Choose three from the following four:

SPAN 351	Introduction to Latin-American Literature I	3
SPAN 352	Introduction to Latin-American Literature II	3
SPAN 353	Introduction to Spanish Literature I	3
SPAN 354	Introduction to Spanish Literature II	3

SPAN _____	Spanish Elective	3
SPAN _____	Spanish Elective	3

MLAN 308	Cross-Cultural Awareness	3
MLAN 338	Teaching Modern Languages	3

Four semesters of a language different from the one of concentration, or two semesters of a language other than the one of concentration, CLST 210, and either MLAN 205 or MLAN 206.

LANG 101
LANG 102
LANG 201
LANG 202
OR
LANG 101
LANG 102
One additional Spanish elective at the 300-level
MLAN 205 or 206

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
SPANISH PK - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

SPAN 538	Apprenticeship in Teaching	3
ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR- -SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	24

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
SPAN 101	Elementary Spanish I	3
SPAN 102	Elementary Spanish II	3
SPAN 201	Intermediate Spanish I	3
SPAN 202	Intermediate Spanish II	3
SPAN 301	Grammar & Composition **OR**	3
SPAN 303	WI Advanced Grammar & Composition	3
SPAN 302	Advanced Spanish Conversation **OR**	3
SPAN 304	Advanced Communication in Spanish **OR**	3
SPAN 308	Conversation via Cinema	3
SPAN 311	Spanish Civilization & Culture **OR**	3
SPAN 312	Spanish American Civilization & Culture	3

Choose three of the following four:

SPAN 351	Introduction to Latin-American Literature I	3
SPAN 352	Introduction to Latin-American Literature II	3
SPAN 353	Introduction to Spanish Literature I	3
SPAN 354	Introduction to Spanish Literature II	3
SPAN _____	Spanish Elective	3
SPAN _____	Spanish Elective	3
MLAN 308	Cross-Cultural Awareness	3
MLAN 338	Teaching Modern Languages	3

COURSE PLAN FOR MAT WITH LICENSURE
ALREADY DEGREED
THEATER PK - 12

GRADUATE COURSE REQUIREMENTS

THEA 550	Stage Management	3
THEA 568	Playwriting Seminar	3
THEA 561	The One Act Play **OR**	3
THEA 546	History of Musical Theater	

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
SOCL 501	Multiculturalism,Diversity and Education **OR**	3
	Graduate Course Elective	
THEA 578	Teaching Apprenticeship in Theater Arts	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS

Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
THEA 100	Dramatic Structures	1
THEA 210	The Modern Dramatic Impulse	3
THEA 211	The Classical Dramatic Impulse	3
THEA 232	Beginning Acting: Playing an Action	3
THEA 250	Introduction to Scene Design & Technology	3
THEA 252	Costume Design & Technology	3
THEA 250L	Backstage practicum(3 semesters required at 1 credit each)	3
THEA 336	Fundamentals of Play Directing	3
THEA 498	Thesis Project	3
Choose one of the following:		
THEA 346	History of Musical Theater	3
THEA 366W	The Rise of Realism in the Theater	3
ENGL 421	Shakespeare I	3
Choose two of the following:		
THEA 351	Tech Theater II	3
THEA 354	Scene Design	3
THEA 356	Lighting Design	3
THEA 452	Costume Design	3

COURSE PLAN FOR MAT FIVE YEAR PROGRAM
WITH LICENSURE
THEATER PK - 12

GRADUATE COURSE REQUIREMENTS

SENIOR YEAR

(Select two of the three; the third course will be taken in fall of the professional year or by permission of the Graduate Program Coordinator during the senior year.)

THEA 550	Stage Management	3
THEA 568	Playwriting Seminar	3
THEA 561	The One Act Play **OR**	3
THEA 546	History of Musical Theater	

FIFTH YEAR - SUMMER

SOCL 501	Multiculturalism,Diversity and Education	3
TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

FIFTH YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
THEA 578	Teaching Apprenticeship In Theater Arts	3
3 Credit Course	Selected from Senior Year graduate courses if not taken Senior Year	(3)
120 HOURS	*Field Experience*	

FIFTH YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	36

UNDERGRADUATE CONTENT AND SUPPORT COURSE REQUIREMENTS

MATH 125	Elementary Statistics	3
COMM 201	Public Speaking **OR**	3
THEA 230	Practical Acting	3
PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
THEA 100	Dramatic Structures	1
THEA 210	The Modern Dramatic Impulse	3
THEA 211	The Classical Dramatic Impulse	3
THEA 232	Beginning Acting: Playing an Action	3
THEA 250	Introduction to Scene Design & Technology	3
THEA 252	Costume Design & Technology	3
THEA 250L	Backstage practicum (3 semesters required at 1 credit each)	3
THEA 336	Fundamentals of Play Directing	3
THEA 498	Thesis Project	3

(Continued on next page)

Choose one of the following:

THEA 346	History of Musical Theater	3
THEA 366W	The Rise of Realism in the Theater-WI	3
ENGL 421	Shakespeare I	3

Choose two of the following:

THEA 351	Tech Theater II	3
THEA 354	Scene Design	3
THEA 356	Lighting Design	3
THEA 452	Costume Design	3

Recommended courses:

FNAR 201 or 202	World Art in Context I or II	3
MUSC 207 or 208	The World's Music	3

COURSE PLAN FOR LICENSURE ONLY
ALREADY DEGREED
THEATER PK - 12

GRADUATE COURSE REQUIREMENTS

PROFESSIONAL YEAR - SUMMER

TCHG 516 m/s	Curriculum and Instruction	3
TCHG 543	Classroom Management and Discipline	3

PROFESSIONAL YEAR - FALL

ENGL 522	Reading and Writing in Content Areas	3
PSYC 535	Exceptional Learner	3
THEA 578	Teaching Apprenticeship in Theater Arts	3
120 HOURS	*Field Experience*	

PROFESSIONAL YEAR - SPRING

CPSC 580	Technology for Teachers	1
TCHG 510	Teaching Internship	8
	TOTAL GRADUATE COURSE HOURS	24

PREREQUISITE CONTENT AND SUPPORT COURSE REQUIREMENTS
Equivalent Courses May Be Accepted

PSYC 207	Life-span Development **OR**	3
PSYC 208	Child Development	3
SOCL 314	Education, Culture and Society	3
SOCL 314L	Education, Culture and Society Laboratory	1
PSYC 312	Educational Psychology	3
CPSC 110	Introduction to Computing	3
THEA 100	Dramatic Structures	1
THEA 210	The Modern Dramatic Impulse	3
THEA 211	The Classical Dramatic Impulse	3
THEA 232	Beginning Acting: Playing an Action	3
THEA 250	Scene Design and Technical Theater	3
THEA 252	Costume Design and Technology	3
THEA 250L	Backstage practicum (3 semesters required at 1 credit each)	3
THEA 336	Fundamentals of Play Directing	3

Choose one of the following:

THEA 346	History of Musical Theater	3
THEA 366W	The Rise of Realism in the Theater	3
ENGL 421	Shakespeare I	3

Choose two of the following:

THEA 351	Tech Theater II	3
THEA 354	Scene Design	3
THEA 356	Lighting Design	3
THEA 452	Costume Design	3

MASTER OF ARTS IN TEACHING
COURSES OF INSTRUCTION

BIOLOGY & ENVIRONMENTAL SCIENCE

BIOL 538. Apprenticeship in Teaching Biology (4-0-4) *Prerequisite: Enrollment in the MAT Program or consent of instructor.*
A course in which prospective teachers are introduced to methods and materials of teaching biology. Emphasis on laboratory exercises and demonstration. Apprentice teachers are expected to design and instruct a variety of laboratory exercises. Apprentice teachers also maintain a journal of practical and methodology experiences.

ENVS 518. Biological Conservation: Theory and Practice (3-3-0)
Biological conservation is a relatively new, applied discipline having more ethical and sociopolitical ramifications than is typical of non-medical scientific disciplines. This course covers the development of conservation theory, biodiversity and problems of determining and evaluating biodiversity, relevant ecological principles, and ethical and economic issues. The course considers current conservation problems and the methods and strategies. The first part of the course is in lecture format and the second part is in seminar format.

ENVS 522. Summer Field Studies (2-0-2)
A one-week field camp in selected habitats emphasizing application of field data gathering and processing techniques to the solving of multifaceted environmental problems. Travel, camping and boat work required. An additional day on campus is required for student presentations.

ENVS 530. Biogeography (3-3-0)
The study of the patterns of distributions of organisms, both past and present, and the abiotic and biotic factors that produced those distributions.

ENVS 532. Wetlands Ecology (4-3-0)
Corerequisite: ENVS 532L
A study of the structure and function of wetland systems from salt to fresh and tropical to the arctic. Concepts will cover hydrology, biogeochemistry, wetland development and succession. Wetland delineation, management, creation and restoration apply these concepts.

ENVS 532L. Wetlands Ecology Laboratory (0-0-4)
Corerequisite: ENVS 532
Field exercises in local wetlands applying principles from lecture.

ENVS 536. Terrestrial Ecology (4-3-0)
Corerequisite: ENVS 536L
A study of the structure and function of terrestrial systems focusing on the distinctive landscapes of the mid-Atlantic coastal region. Concepts will cover population, community and ecosystem ecology of plants and animals within these systems with attention given to the processes and functions that are distinct within and common among these systems.

ENVS 536L. Terrestrial Ecology Laboratory (0-0-4)
Corerequisite: ENVS 536
Field exercises in local terrestrial ecosystems applying principles from lecture.

ENVS 540. Environmental Microbiology (4-3-0)
Corerequisite: ENVS 540L
The course investigates the role microorganisms play in terrestrial, aquatic, and marine ecosystems. The course explores: the dynamics of microbial populations and communities; normal microbiota and their interactions with other organisms; and environmental pathologies in which microorganisms are the primary agent (e.g., coliforms and other fecal contaminants in water, and adicophiles in mine tailings).

ENVS 540L. Environmental Microbiology (0-0-4)
Corerequisite: ENVS 540
Laboratory exercises include classic environmental testing procedures and novel new assessment procedures that have their roots in biochemistry and molecular biology.

ENVS 550. Global Change (3-3-0)
An examination of the evidence for and causes of global change. The impact of changes in the global cycles of C, N, P, and H2O on ecosystem structure and function are examined. Atmosphere, terrestrial and aquatic biosphere changes are discussed along with their effect on plant and animal communities. Students present current scientific papers on various issues within this field.

ENVS 590. Topical Seminars in Environmental Science (1-4 credits)
Prerequisites: May vary depending on the topic offered.
A variety of environmental science related topics not available in the regular curriculum are offered. These courses will be designed to fill a particular need not met by the regular courses or may be designed to use the talents of an environmental scientist who is not part of the CNU faculty.

ENVS 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program and consent of the instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted

for approval prior to enrollment. See page 17 for specific instructions and procedures.

COMPUTER SCIENCE

CPSC 501. Software System Design & Implementation (3-3-0) *Prerequisites: CPSC 270 (Fall)*
The management, specification, design, implementation and documentation of complex software systems. A paper or class presentation based on independent reading of research papers concerning new developments in software engineering are required. Students are expected to learn to use software systems such as CASE tools.

CPSC 502. Communications I (3-3-0)
Prerequisites: Ability to program in C or C++, or permission of the instructor. (Summer)
A comprehensive view of data communications with an emphasis on computer networks. Baseband and broadband local area networks, OSI model, logical link protocols, media with an emphasis on fiber-based interfaces, topology and routing/flow control. TCP/IP protocols and socket-based application development are emphasized.

CPSC 580. Technology for Teachers (1-1-0)
Prerequisite: CPSC 110 (Spring)
This course addresses instructional technology required for the K-12 classroom. Issues, skills, and strategies associated with instructional technology are introduced. Experience involving practical application of instructional technology in the classroom is gained throughout the course.

CPSC 595. Advanced Topics In Computer Science · (Credit varies) *Prerequisite: Enrollment in the MAT Program or consent of the instructor.*
Course topics are selected on the basis of faculty and student interests.

CPSC 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program and consent of the instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

ENGLISH

ENGL 501. Teaching Literature (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer)
In this seminar, students explore methods for teaching literature. The participants read and analyze various literary works. In addition the seminar introduces students to literary and pedagogical theories, but the emphasis is on the application of these theories to the language arts classroom.

ENGL 511. Teaching English to Speakers of Other Languages (TESOL) (3-3-0) *Prerequisite: Enrollment in the MAT Program or consent of instructor.*
This course is a graduate seminar that examines methods of teaching English to speakers of other languages (TESOL). Students learn about the cognitive, affective, linguistic and sociocultural processes involved in second language development and acquire the ability to critically evaluate and develop teaching methods and materials.

ENGL 512. Reading Multicultural Literature (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Spring)
This course offers students an opportunity to read and discuss important works written by American authors of selected racial, religious, regional or ethnic backgrounds. Students analyze literature and discuss strategies for teaching this literature.

ENGL 514. Critical Reading of Children's Literature (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Fall/Spring)
This course is a theoretical inquiry into the nature of children's literature. While reading a variety of contemporary children's books as case studies, students consider what children's literature is, how (or if) it differs from literature for adults, what our cultural and personal assumptions about the nature of childhood are, and how those assumptions govern what adults think children do or ought to read.

ENGL 521. Teaching Composition (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor. (Fall)
This course is an introduction to the theory and practice of writing. Not only do participants explore several ways to teach writing, but they also write and present classroom assignments that exemplify these methods. Finally, each student develops a theory of composition that can be used in the classroom.

ENGL 522. Reading & Writing in Content Areas (3-3-0)
Prerequisite: *Enrollment in the MAT Program or consent of instructor. (Fall)*
Focus is on the skills and strategies for teaching reading and writing through the content areas, with emphasis on reading comprehension, vocabulary development, study skills, and expository writing. A 12-hour field experience is required.

ENGL 532. Language Varieties in American Schools (3-3-0) *Prerequisite: Enrollment in the MAT Program or consent of instructor. (Fall, Spring)*
This course surveys topics relevant to the language arts classroom. Illustrative topics include grammar and writ-

ing, language acquisition, techniques to facilitate the learning of Standard English by speakers of other languages and dialects, language variation, spoken versus written English, etc.

ENGL 595. Advanced Topics in English (Credit varies) *Prerequisite: Enrollment in the MAT Program or consent of instructor.*
Course topics are selected on the basis of faculty and student interests.

ENGL 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

FINE ARTS

FNAR 534. Theory and Practice of Art Education (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Fall)
A study of the theories of art education related to child development, perceptual theory, and general educational philosophy. Course focuses on the disciplines of art, art history, art production, art criticism and aesthetics. Field observation is required.

FNAR 535. Integrating the Visual Arts (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer)
This seminar invites students to consider and create the varied ways in which the visual arts can be integrated within the context of public school teaching. A number of integrative approaches are considered: integrating the arts into other content areas; integrating one's own personal talents and interest into the art classroom; integrating community resources into the curriculum; and integrating various aspects of the visual arts into teaching units.

FNAR 589. Teaching Crafts (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Spring)
Teaching crafts is a course that continues the exploration of craft processes and materials appropriate for art teachers. Possible projects include weaving, copper enameling, fabric surface design, wood construction and jewelry making. Students develop competencies in presenting mini-workshops in craft skills.

FNAR 595. Advanced Topics in Art (Credit varies)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
Course topics are selected on the basis of faculty and student interests.

FNAR 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

FRENCH

FREN 503. Advanced Writing and Stylistics (3-3-0)
Prerequisite: FREN 303W or consent of the instructor.
The focus of this course is on process writing at the advanced level. Through a variety of activities, including imitation of models, creation of multiple drafts, peer editing and a system of guided corrections, students are encouraged to develop their writing skills, improve their linguistic competence, and master appropriate levels of style in French. In addition to the basic material of the course, students create lesson plans and present selected areas of French structure to the class, keep a journal in which they reflect on teaching styles and techniques, guide the peer editing process for selected classes, serve as tutors for the undergraduate students, and meet regularly with the instructor to discuss questions of methodology and pedagogy. In addition to the basic writing assignments for the course, graduate students will be required to submit one longer piece of writing, and they will also be evaluated on their overall level of preparedness for the teaching of French.

FREN 538. Research in Foreign Language Teaching (3-3-0) *Prerequisite: FREN 338, and enrollment in the MAT Program or consent of instructor. (Summer)*
This is a course designed to have candidates for the MAT in French do individual research projects on foreign language methodology and pedagogy and second language acquisition. Such projects may include readings, observations of foreign language classes, and the creation of sample materials for the classroom. All students in FREN 538 will complete a term paper on a topic dealing with foreign language teaching to be approved by the instructor.

FREN 595. Advanced Topics in French (Credit varies)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Course topics are selected on the basis of faculty and student interests.

FREN 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.

Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

GOVERNMENT

GOVT 570. Methods for Teaching Social Studies (3-3-0) *Prerequisite: Enrollment in the MAT Program or consent of instructor.*
Social studies education is a powerful tool, not only in the development of democratic behavior, but also in the promotion of understanding multiculturalism and the complexities of global issues that are shaping the world today. This course exposes prospective social studies teachers to various methodologies that they can employ in their teaching to achieve the goals of preparing the youth in meeting the challenges of an ever-changing and complex world.

GOVT 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

HISTORY

HIST 502. Roman History (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
A history of Rome from the early history of Italy to the fall of the Roman Empire. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 515. The Byzantine Empire (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
A historiographical and topical history of the Later Roman Empire from the transfer of the imperial capital to Constantinople in the fourth century A.D. to the fall of the city in 1453. Subject matter includes the imperial constitution and the administration of the State; the cult of the Emperor; religion and the Church; the Army; city and country life; education and learning; literature and art; and Byzantium and its neighbors, especially the Empire's relationships with its neighbors in the Islamic world. The course requires significant independent research from primary sources. Graduate students are responsible for teaching one topic to be covered. The topic and the date for delivery of the lesson will be chosen in consultation with the instructor.

HIST 518. Nineteenth Century Europe (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
This course covers the political, social, economic and cultural history of Europe from 1800-1900. Topics covered include the Napoleonic Empire, Metternich and era of reaction, the Industrial Revolution, Liberalism, Nationalism and Socialism, the Revolution of 1848, the French Second Empire, the unification of Italy and Germany, the era of Bismarck, 19th imperialism and the Germany of William II. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 552. Europe's Settlement of North America (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
An examination of European intrusion into North America during the 16th & 17th centuries. Interactions among Africans, Europeans, and Native-Americans in Dutch, English, French, and Spanish outposts will be highlighted. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 553. Colonial North America and the Creation of the United States. (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
An examination of the interactions among Africans, Europeans and Native Americans in English, French and Spanish North American settlements and provinces in the 18th century, concluding with the creation of the United States in the 1700's and 1780's. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 556. The United States in the Gilded Age and Progressive Era, 1870's to 1920's (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
This course is an analysis of the major economic, social, cultural and political trends in America from the 1870's through the 1920's. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 565. History of Islam (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
A historical exploration of the genesis of Islam, its doctrine and practices as well as a critical survey of the literature that has shaped the West's historical narrative on Islam. Assignments include a major research paper and oral presentation on selected topics related to the research project. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 566. Society & Culture in Chinese History (3-3-0) *Prerequisite: Enrollment in the MAT Program or consent of the instructor.*
Course focuses on social and cultural aspects of Chinese history, especially during the last four centuries. It examines such issues as environment, economic patterns, agricultural technology, native medicine, family system, women's status, cosmology, philosophy, religion, secret societies, Chinese tradition and Western influences, new social classes, and so on, to deepen the understanding of Chinese history and contemporary China in important dimensions. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 572. History of Virginia (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
This course examines the Old Dominion's past from colonization through the American Revolution and Civil War up to the present. Focusing on major political, economic and social developments, students will explore the key events that shaped the state's history by studying primary documents as well as by analyzing the secondary historiography. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 573. Major Themes in Contemporary Africa (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor.
Explores key problems in contemporary African sociopolitical and economic life. The class examines some of the most compelling arguments that have been forwarded in recent years to highlight the dilemma of post-independence Africa. Students are required to write a major research paper and to make classroom presentation. In addition to writing major papers in the area of study, graduate students will prepare lessons on one or more topics and teach those to the class. Analysis of teaching strategies will occur. Instructional resource units may also be assigned.

HIST 595. Advanced Topics in History (Credit varies)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Course topics are selected on the basis of faculty and student interests.

HIST 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

MATHEMATICS

MATH 538. Apprenticeship in Teaching Mathematics (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Fall)
The purpose of the course is to have students work with lower level college students in understanding and mastering basic mathematics concepts. Students are assigned tutorial activities such as observing, analyzing class responses and assisting in class work This includes administering individual and group tutoring sessions, submitting a log of interactions and writing a research paper about how students learn mathematics.

MATH 570. The Study of Mathematics (3-3-0)
This course has separate sections for elementary and middle/secondary.
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Focus on the methodology necessary for teaching school mathematics based on current understanding and insights derived from both content and pedagogy. Development of creative instructional approaches that are meaningful and mathematically correct and which instill enthusiasm and satisfaction in learning and using mathematics. Includes a 12-hour field experience.

MATH 578. Elementary Geometry from an Advanced Viewpoint (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of the instructor. (Spring)
This course compares and contrasts the origins, applications and basic structures of Euclidean and non-Euclidean geometry. Attention is given to ideas involved in teaching geometry.

MATH 595. Advanced Topics in Mathematics (Credit varies) *Prerequisite: Enrollment in the MAT Program or consent of the instructor.*

Course topics are selected on the basis of faculty and student interests.

MATH 596. Curriculum and Assessment in Secondary School Mathematics (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer)
The purpose of the course is to review those mathematics topics taught in middle school and high school. Students also explore ways of knowing and assessing these various competencies.

MATH 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

MUSIC

APP COND 533. Applied Choral Conducting (3-3-0)
Prerequisite: MUSC 314 and MUSC 520
The study of applied choral conducting at the graduate level is to develop further the synthesis of baton technique, rehearsal technique, expression, and scholarship. Through weekly practice with either the CNU Chamber Choir; conducting on concerts and recitals; attending master classes, recitals, and concerts; listening to recordings; and the reading articles and books on conducting and pedagogy, a student will have the opportunity to improve technique and performance and achieve a greater musical and historical understanding of the repertoire.

APP COND 533. Applied Orchestral Conducting (3-3-0) *Prerequisite: MUSC 316 and MUSC 540.*
The study of applied orchestral conducting at the graduate level is to develop and further the synthesis of baton technique, rehearsal technique, expression, and scholarship. Through weekly practice with the CNU Orchestra; conducting of concerts and recitals; attending master classes, recitals, and concerts; listening to recordings; and reading articles and books on conducting and pedagogy, a student will have the opportunity to improve technique and performance and achieve a greater musical and historical understanding of the repertoire.

APP COND 533. Applied Wind Conducting (3-3-0)
Prerequisite: MUSC 316 and MUSC 530.
The study of applied wind conducting at the graduate level is to develop further the synthesis of baton technique, rehearsal technique, expression, and scholarship. Through weekly practice with the CNU Wind Ensemble; conducting on concerts and recitals; attending master classes, recitals, and concerts; listening to recording; and reading articles and books on conducting and pedagogy, a student will have the opportunity to improve technique and performance and achieve a greater musical and historical understanding of the repertoire.

MUSC 507. American Music (3-3-0)
A course in which music is studied as a part of America's cultural history. Beginning with music transported to the New World by the Pilgrims and the Puritans, musical activity is traced chronologically into the twentieth century. Among major topics discussed are the singing school movement, nineteenth-century popular music, the development of music education, American band music, the beginnings of jazz, the establishment of an indigenously American expression, and the coming of world prominence in music of the twentieth century.

MUSC 510. Measurement and Evaluation in Music Education (2-2-0)
Prerequisite: Graduate standing in music or music education. (Spring)
Techniques and methods of measuring and evaluating musical behaviors in cognitive, affective, and psychomotor domains.

MUSC 515. Orchestration (1-1-0)
Prerequisite: MUSC 310, 312; music education major pursuing the MAT degree, degreed music teacher seeking recertification, or consent of the instructor. (Fall)
A course in which the basic concepts of arranging music for various groups of instruments are studied. After a general survey of the instruments of the orchestra covering ranges, clefs, timbre, special effects, and terminology, techniques of actual orchestration are studied through written projects and analysis of scores. A significant final project requires either an arrangement or an original composition for the major ensemble of the student. This course is required for music education majors pursuing the Master of Arts in Teaching degree.

MUSC 520. Choral Literature and Conducting (3-3-0) *Prerequisite: MUSC 310, 312 and 314; choral music education major pursuing the MAT degree, degreed music teacher seeking recertification, or consent of the instructor. (Spring)*
A survey course which requires historical and structural analysis and conducting of major choral literature from the Renaissance to the present. Students conduct live ensembles both in the classroom and in the rehearsal hall. Special emphasis is placed on major works, composers, compositional styles, analysis, programming, error detection, and conducting. Students read and discuss a variety of material to develop the knowledge and pedagogical skills necessary to become effective teachers, scholars, and musicians. A major research paper and presentation are required in addition to ten hours of field observation and teaching experience in the public

schools. This course is required for the MAT degree with a concentration in choral music education.

MUSC 530. Wind Literature and Conducting (3-3-0)
Prerequisite: MUSC 310, 312, and 316; instrumental music education major with an emphasis in band pursuing the MAT degree, degreed music teacher seeking recertification, or consent of the instructor. (Spring)
A comprehensive study of wind groups focusing on instrumentation and literature from the earliest beginnings to the present. Special emphasis on major works, composers, stylistic changes, programming, and conducting. Students read and discuss a variety of material to develop the knowledge and pedagogical skills necessary to become effective teachers, scholars, and musicians. A major research paper and presentation are required in addition to ten hours of field observation and teaching experience in the public schools. Students conduct live ensembles both in the classroom and in the rehearsal hall. The course is required for the Master of Arts in Teaching degree with a concentration in instrumental music education with an emphasis in band.

MUSC 537. Music in the Elementary Schools (2-2-0)
Prerequisite: Music education major pursuing the MAT degree, degreed music teacher seeking recertification, or consent of the instructor. (Fall)
Fundamental procedures of and experiences in teaching elementary school music, stressing music materials suitable for the first six grades. Methods discussed and practiced include those of Orff, Kodaly, Suzuki, Manhattanville, and Dalcroze. An introduction to fretted instruments and recorders is also included. Students read and discuss a variety of material to develop the knowledge and pedagogical skills necessary to become effective teachers, scholars, and musicians. A major research paper and presentation are required in addition to ten hours of field observation and teaching experience in the public elementary schools. This course is required for music education majors pursuing the MAT degree.

MUSC 538. Foundations of Musical Growth and Development (3-3-0) *Prerequisite: Graduate standing in music or music education.(Fall)*
An overview of issues pertaining to musical growth and development of children in the general music classroom. Students are expected to complete off-site observations and participate in the Tidewater Orff-Schulwerk Chapter in Virginia Beach, Virginia.

MUSC 540. Orchestral Literature and Conducting (3-3-0)
Prerequisite: MUSC 310, 312 and 316; instrumental music education major with an emphasis in orchestra pursuing the MAT degree, degreed music teacher seeking recertification, or consent of the instructor. (Spring)
A comprehensive study of orchestral groups focusing on instrumentation and literature from the earliest beginnings to the present. Special emphasis on major works, composers, stylistic changes, programming, and conducting. Students read and discuss a variety of material to develop the knowledge and pedagogical skills necessary to become effective teachers, scholars, and musicians. A major research paper and presentation are required in addition to ten hours of field observation and teaching experience in the public schools. Students conduct live ensembles both in the classroom and in the rehearsal hall. This course is required for the MAT degree with a concentration in instrumental music education with an emphasis in orchestra.

MUSC 550. Secondary Instrumental Music Methods (2-2-0) (*Summer)*
This is a comprehensive course focusing on the instruction and management of instrumental music program from middle school through high school. Methods and materials for beginning through secondary instrumental music students are discussed and experienced through reading, writing, and practicum.

MUSC 570. Marching Band Techniques (1-1-0)
Prerequisite: MUSC 310, 312 and 316; instrumental music education major pursuing the MAT degree, degreed music teacher seeking recertification, or consent of the instructor. (Fall)
Techniques and methods for organizing, programming, rehearsing, teaching, and arranging music for a marching band. Computer assisted drill design is a major component of this course. A comprehensive notebook and extensive outside readings and viewings or videos are required in addition to ten hours of field observation and teaching experience in public schools. This course is required for the MAT degree with a concentration in instrumental music education.

MUSC 580. Jazz Ensemble Techniques (1-1-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer)
Techniques and methods for organizing, programming, rehearsing, and teaching improvisation in a school jazz band and choral setting. A comprehensive notebook and extensive outside readings and listening examples are required in addition to ten hours of field observation and participation in the public schools. This course is required for the MAT degree with a concentration in either instrumental or choral music education.

MUSC 590. Falk Seminar in Music Historical Research (3-3-0)
A proseminar in musicology that facilitates the scholarly preparation, writing and annotation of research findings through accurate and disciplined use of conventional style sheets. This course provides an excellent initiative for teacher training and recertification and an avenue into the field of Musicology.

MUSC 595. Advanced Topics in Music (Credit varies)
Prerequisite: Enrollment in the MAT Program in Choral Music Education or consent of instructor.
Course topics are selected on the basis of faculty and student interests.

MUSC 596. Vocal Pedagogy (3-3-0)
Prerequisite: Enrollment in the MAT Program in Choral Music Education or consent of instructor. (Spring)
This course teaches techniques and methods in proper vocal technique and the instruction of teaching proper vocal technique. Topics include breathing, phonation, resonation, registration and physiology. The course centers around learning proper techniques for teaching voice in a class and individual setting.

MUSC 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

PHYSICS

PHYS 501. Models of Dynamical Systems (3-3-0)
Prerequisites: Math through differential equations or permission of the instructor. (Fall)
The classical models of physical phenomena, the modern perspective on their analytic and qualitative solutions and the insights that numerical analysis of the models gives to expected behaviors of dynamical systems. Computer analysis and graphical representation of solutions for regular and chaotic dynamical systems.

PHYS 502. Quantum Physics (3-3-0)
Prerequisites: PHYS 501 or permission of instructor. (Odd Spring)
Study of the formulation of quantum physics and the use of computers to analyze quantum mechanical systems. Topics include the postulates of quantum physics, the Shroedinger equation, indeterminacy, the Heisenberg representation, angular momentum, internal degrees of freedom, the hydrogen atom, perturbation theory, quantization of the EM field and radiative transitions.

PHYS 504. Electromagnetic Theory (3-3-0)
Prerequisites: PHYS 304 or MATH 350 or permission of instructor. (Even Spring)
Review of electrostatics and magnetostatics. Maxwell's equations and time varying fields: wave propagation and polarization, waveguides and cavities and radiating systems. Computer programs for the solution of problems will be emphasized.

PHYS 595. Advanced Topics in Physics (Credit varies) *Prerequisite: Enrollment in the MAT Program or consent of instructor.*
Course topics are selected on the basis of faculty and student interests.

PHYS 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

PSYCHOLOGY

PSYC 521. Reading Acquisition and Development. (3-3-0) *Prerequisite: Enrollment in the MAT Program or consent of instructor and reading field experience. (Summer, Fall)*
This course examines theories, principles, strategies, and research related to reading acquisition and development in children from preschool through primary grades. The developmental nature of reading acquisition and the application of current reading research to instructional practice will be emphasized. Topics covered will include theories of reading development; skills-based, holistic, and balanced approaches to reading instruction; the application of empirical research findings to reading instruction; language basics, including syllables, phonemes and morphemes; concepts of print; letter recognition; phonemic awareness; the alphabetic principle (sound-symbol knowledge); comprehension strategies; the role of the family in reading acquisition; reading attitudes and motivation; and diverse learners. A minimum 15-hour field experience is required.

PSYC 535. Exceptional Learner (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer, Fall)
This course provides prospective teachers with a basic understanding of special education, its terminology, legal mandates, the etiology and characteristics of exceptionality, and various strategies for educating students with diverse learning needs. Specifically, students are introduced to appropriate educational interventions related to learning disabilities, mental retardation, emotional disturbance, attention-deficit/hyperactivity disorder, autism, developmental delays, speech or language impairment, hearing impairment, visual impairment, physical disabilities, chronic health conditions, traumatic brain injuries, and giftedness.

PSYC 595. Advanced Topics in Psychology (Credit varies)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Course topics are selected on the basis of faculty and student interests.

PSYC 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

SOCIOLOGY

SOCL 501. Multiculturalism, Diversity, & Education (3-3-0) *Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer, Fall)*
This course addresses the sources and consequences of racial, ethnic, class, and gender diversity in the United States with special attention to the implications for education and the public school system. Topics include bilingual education; the relationships between inequalities of race, ethnicity, and class and education; immigration and the schools; affirmative action; racism; and sexism.

SOCL 595. Advanced Topics in Sociology (Credit varies) *Prerequisite: Enrollment in the MAT Program or consent of instructor.*
Course topics are selected on the basis of faculty and student interests.

SOCL 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

SPANISH

SPAN 538. Apprenticeship in Teaching (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Fall)
This course introduces prospective teachers to the skills necessary to plan, implement, and evaluate effective lessons in the area of Spanish instruction. In this course, students are assigned to a University professor and work with beginning foreign language students.

SPAN 595. Advanced Topics in Spanish (3-3-0)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Course topics are selected on the basis of faculty and student interests.

SPAN 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

TEACHING AND LEARNING

TCHG 510. Teaching Internship (8-0-24)
Prerequisite: Enrollment in the MAT program or consent of instructor. (Spring) A full-time, 12-week clinical teaching experience in the public schools.

TCHG 516. Curriculum and Instruction (3-3-0)
NOTE: This course has separate sections for elementary and middle/secondary.
Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer)
This course teaches prospective teachers those instructional methodologies which are appropriate to the needs of students. Emphasis is placed on the acquisition of skills essential for teacher decision-making in the areas of instructional planning, lesson design, and delivery of instruction. Special attention is paid to the research on effective instructional strategies. A key requirement of the course is microteaching simulations which are evaluated by the instructor and peers. A minimum 15 hour field experience is scheduled in classroom settings.

TCHG 543. Classroom Management and Discipline (3-3-0) *Prerequisite: Enrollment in the MAT Program or consent of instructor. (Summer)*
The course addresses components of successful classroom management, including managing the physical environment, student behavior, instruction and student productivity. A number of discipline models will be presented. Emphasis is on research proven to effect productive classroom behaviors.

TCHG 550. Teaching Across Cultures (3-2-1)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
This course is a two-week experiential course, tied to a graduate seminar, that examines issues involved in educating students in a context other than the United States. Students learn about the culture of the country under study, and how it impacts the educational goals, pedagogy, and materials used in the schools. Comparison and contrast between the country's education and that of the United States will be examined.

TCHG 551, TCHG 552. Reading Recovery ® I and II (3-3-0) *(Fall, Spring)* Two semester contract course offered in conjunction with a public school district and only

open to licensed teachers. Course is an in-depth study of early literacy acquisition and is designed to provide training in Reading Recovery ®.

TCHG 595. Advanced Topics in Teaching (Credit varies) *Prerequisite: Enrollment in the MAT Program or consent of instructor.*
Course topics are selected on the basis of faculty and student interests.

TCHG 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

THEATER

THEA 546. History of Musical Theater (3-3-0)
Prerequisite: Enrollment in the MAT program or consent of the instructor.
The contemporary musical continues to explore new forms of expression on the world stage. This course considers the books and scores of selected musical theater high spots, including *Showboat, Oklahoma, West Side Story, Candide, Jesus Christ Superstar, and Sweeney Todd*. Graduate students are expected to prepare major research papers, over and above the work required in the rest of the class. These papers are assigned/agreed upon in a specific area of interest. They also prepare lessons on one or more topics in the area of study and teach those to the class. The professor provides feedback on teaching techniques and strategies. Practical applications, such as adapting the material to teaching or supervising theatrical productions in K-12 schools, are assigned and evaluated.

THEA 550. Stage Management (3-3-0)
Prerequisite: Enrollment in the MAT program or consent of the instructor.
This highly practical course allows prospective teachers to organize and manage every aspect of theatrical production - from posting the first audition notice to calling the final light cue on closing night. Skills include: organizing production meetings, developing a rehearsal schedule, maintaining a blocking script, running tech rehearsals, and coordinating with the director, designers, actors, crews and house staff.

THEA 561. The One Act Play (3-3-0)
Prerequisite: Enrollment in the MAT program or consent of the instructor.
The one-act play, like the short story to the novelist, has offered dramatists a powerful venue for diverse experiment and concentrated theatrical effect. Students encounter seminal examples of short plays by Moliere, Anton Chekov, August Strindberg, Eugene O'Neill, Thornton Wilder, Tennessee Williams, Edward Albee, Samuel Beckett, Leroi Jones, Tom Stoppard, Sam Shepard, and Peter Handke. Graduate students are expected to prepare major research papers, over and above the work required in the rest of the class. These papers are assigned/agreed upon in a specific area of interest. They also prepare lessons on one or more topics in the area of study and teach those to the class. The professor provides feedback on teaching techniques and strategies. Practical applications, such as adapting the material to teaching or supervising theatrical productions in K-12 schools, are assigned and evaluated.

THEA 568. Playwriting Seminar (3-3-0)
Prerequisite Enrollment in the MAT program or consent of the instructor.
Students work to develop a playwright's vocabulary of dramatic form and theatrical expression, including principles of structure, action, dialogue, character, and spectacle. The seminar culminates in the authorship and revision of original ten-minute one-act plays with opportunities to mount new works in CNU's Studio Theater. Graduate students are expected to prepare major research papers, over and above the work required in the rest of the class. These papers are assigned/agreed upon in a specific area of interest. They also prepare lessons on one or more topics in the area of study and teach those to the class. The professor provides feedback on teaching techniques and strategies. Practical applications, such as adapting the material to teaching or supervising theatrical productions in K-12 schools, are assigned and evaluated.

THEA 578. Teaching Apprenticeship in Theater Arts (3-3-0) *Prerequisite: Enrollment in the MAT program or consent of the instructor.*
This course introduces prospective teachers to the skills necessary to plan, implement, and evaluate effective lessons in the multi-disciplinary art of theater. In this course, students are assigned to a teacher of Theater Arts and work with beginning theater students in the classroom environment.

THEA 595. Advanced Topics in Theater (Credit varies)
Prerequisite: Enrollment in the MAT Program or consent of instructor. Course topics are selected on the basis of faculty and student interests.

THEA 599. Independent Study (1-3 Credits)
Prerequisite: Enrollment in the MAT Program or consent of instructor.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

M.S. in Applied Physics and Computer Science

The Master of Science in Applied Physics and Computer Science addresses the need for graduate education in applied physics and computer science. This degree is for both part-time and full-time graduate students who desire excellence in instruction, state of the art equipment and software, and a faculty with an intense involvement in the application of physics and computers to solve exciting and significant problems.

The department has amassed a strong record of research and publications in six areas: solid state (lasers, semiconductors and superconductors), nuclear physics, dynamical systems, artificial intelligence, instrumentation and advanced computer systems and new computer-based technologies for primary and secondary education. Much of this research has resulted in significant scientific collaborations with the two national laboratories here, the NASA Langley Research Center and the Thomas Jefferson National Accelerator Facility.

The department has five major teaching-research labs: the Hunter Creech Computer Lab, the Superconductivity and Data Acquisition Lab, the Photonics and Laser Lab, the Digital Systems Lab and the Information Science Lab. In addition, it has two general-purpose laboratories and a large common area for student-faculty collaborations and study.

Dr. Antonio Siochi
Graduate Program Coordinator
siochi@pcs.cnu.edu
131 Gosnold Hall
(757) 594-7569

Master of Science in Applied Physics and Computer Science

The Master of Science in Applied Physics and Computer Science is built around a core of physics and computer science courses that are the foundation of the three areas of concentration: computer science, computer systems engineering and instrumentation, and applied physics. Students may elect a thesis option or a non-thesis option.

The CNU master's program offers students with a bachelor's degree a significant step in their maturing as scientists. The department offers many opportunities to its graduate students because of its location in the heart of high-tech Hampton Roads and its ties with area national labs and newly developing companies. They include:

- Participation in funded research at both the Thomas Jefferson National Accelerator Facility and the NASA Langley Research Center—each within a 15-minute drive of the campus.
- Research in solid state materials, digital signal processing, high speed data acquisition, artificial intelligence, the design of smart sensors, application-specific integrated circuits, modeling and simulation and pattern recognition.
- Solving the problems of industry at the Applied Research Center (ARC)—a state-of-the-art research consortium for several universities.
- Working in well-equipped laboratories both on campus and at the ARC.
- Creating papers and presentations for national conferences and publications.
- Team-based learning in small classes taught at the cutting edge of their disciplines.

Five-Year Combined B.S./M.S. Programs

The department also has programs leading to a B.S. and M.S. in Applied Physics and Computer Science after five years of study. For undergraduate students putting in an extra year to obtain the M.S., lifetime earnings and the potential for increased opportunities and job satisfaction can increase significantly. These programs are very flexible and students will still receive the B.S. in their degree program once they complete the requirements, even if they don't complete the M.S. program. Interested students should talk to their advisor early in their program since course sequencing is critical to success. To formally enroll in the program requires a GPA of 3.0 or better. Application to these programs should be made by February 1st of the junior year. The ***Application for Admission to 5 Year Graduate Study Program*** is distributed by the Graduate Program Coordinator. Detailed information on Admission and Program Requirements is found on pages 90-91 in this catalog, and is also available in the Physics, Computer Science & Engineering departmental office and at http://academics.cnu.edu/graduateAndFiveYearPrograms.cfm

Admission Requirements for Degree-Seeking Students

1. A baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 3.00 on a 4.00 scale.
2. An official transcript from the baccalaureate institution with the degree posted, and official transcripts for all graduate work taken at other institutions.
3. Three letters of recommendation from people who can attest that the applicant is likely to be able to be successful in graduate level academic work. All recommendations must arrive in unopened envelopes with the reference's signature across the envelope flap.
4. Scores from the Graduate Record Examination (GRE) General Test taken within five years prior to the date of admission. A GRE score of at least 950 for Verbal and Quantitative sections combined is required and a score at or above 1000 is highly desirable. GRE scores are used as one of several indicators of the applicant's ability to succeed in graduate studies. For those applicants already holding a master's degree, the GRE may be waived by permission of the Director of Graduate Studies. A letter to the Director of Graduate Studies requesting a waiver is required.

The Master of Science in Applied Physics and Computer Science is designed to serve students with a baccalaureate degree in applied physics, computer science, electrical and/or computer engineering or mathematics. Students with degrees in other areas are encouraged to apply. Departmental graduate advisors will establish the background courses needed for such students. This program is also designed to serve students who want advanced study in the electronic or optical properties of materials, computer science, computer systems engineering, or computer controlled instrumentation.

Applicants who have completed interesting research or design projects as undergraduates or as a part of their work are invited to submit descriptions of such projects as support for their application.

Academic Policy for Non-Degree Students

Non-degree students are limited to 12 hours of graduate study. Up to 12 credits of graduate study may be applied to the graduate degree should a non-degree student apply and be accepted to degree-seeking status. Should a non-degree student desire additional courses beyond the 12-credit limit, he or she may petition the Graduate Program Coordinator for a waiver of this limit. Before enrolling in any graduate course a non-degree student must obtain consent of the instructor. The instructor will determine whether the student has the academic background prerequisites for the specific course. Admission requirements for non-degree students are found on page 110 of this catalog.

Changing from Non-degree Status to Degree-seeking Status

A non-degree student may apply to change to degree-seeking status if he or she:

- has completed 12 hours of CNU graduate courses with a cumulative 3.0 GPA or higher,
- has a status of Good Academic Standing, and
- has submitted passing scores from the Graduate Record Exam.

To apply, submit the ***Request for Change to Degree-seeking Status*** **form** to Graduate Admissions along with the documentation listed in Admissions Requirements for Degree-Seeking Students on page 84.

Academic Prerequisites

See each concentration for the specific academic prerequisites. An accelerated schedule of undergraduate prerequisites can be arranged for applicants whose qualifications do not entirely satisfy the prerequisites for graduate study. Good computer programming skills are critical to a student's success in many of the courses, especially those courses with the CPSC prefix.

Goals of the Program

The program's overall goal is to provide its graduates with the scientific background and technical tools to:

1. Advance an experimental technique, extend the application of a theory or produce new data or observations.
2. Design, build and evaluate a system of measurement, instrumentation, computers and/or software.
3. Present logically and clearly the results of their own scientific investigation.
4. Understand and critically evaluate other scientists' work.

Curriculum

The student chooses either the 30-hour program which requires four core courses, plus four concentration courses and a thesis that includes a design course **or** the 36-hour program which requires four core courses, four concentration courses and four electives.

The special feature of the coursework in the master's degree program is its emphasis on applications, laboratory experience and extensive use of computer software and hardware. All of the courses make extensive use of computers or require significant laboratory experimentation. The thesis preparation course ties these elements securely together and is an integral part of the thesis.

A formal plan of graduate study is prepared with the student's advisor. The general requirements listed below are guides and serve as models for students' planning for each of the concentrations.

Thesis Proposal/Comprehensive Oral Examination (Thesis Option)

The culminating requirement for the prethesis course is completion of the thesis proposal. Students not completing the thesis proposal by the end of this course will receive a grade of ***U***. **Students will have two chances**

to pass the thesis proposal. If the student is not successful the second time, the student will receive a ***F*** for the design course and will be suspended from the graduate program.

Comprehensive Examination (Non-Thesis Option)

A written comprehensive examination is required, covering the concentration courses. A student not passing the comprehensive examination may request a re-examination within six months of the failure. Only one additional examination is permitted after the failure of the original comprehensive examination.

Memorandum of Understanding

Christopher Newport University has a memorandum of understanding with Longwood College for a dual degree program leading to a B.S. in Physics from Longwood College and a M.S. in Applied Physics and Computer Science from CNU. For more information contact the Program Coordinator, Dr. Antonio Siochi, at (757) 594-7569 or siochi@pcs.cnu.edu.

Graduate Certificate Programs

In addition to the M.S. degree, the department offers three graduate certificate programs. A student can receive a certificate in networked systems, software development and design, or applied artificial intelligence. Each program consists of three courses. All courses are offered in the evening. For more information contact the Physics, Computer Science, and Engineering Department at (757) 594-7065 or at phone@pcs.cnu.edu.

Graduation Requirements

Thesis Option

- Successful completion of 30 hours of the M.S. in Applied Physics and Computer Science degree program course work; those students in the five-year program must earn a minimum of 21 hours while in graduate status;
- An overall graduate grade point average of 3.00 in all CNU courses submitted for graduate credit with no more than two grades of ***C;***
- Successful completion of the thesis proposal/comprehensive oral examination;
- Successful defense of thesis and presentation of the appropriate number of approved copies to the Office of Graduate Studies by the published deadline;
- Presentation of an electronic copy of the thesis in a suitable format to the department for archive purposes only.

Non-Thesis Option

- For those students not in the five-year program: successful completion of 36 hours of the M.S. in Applied Physics and Computer Science degree program course work;
- For those students in the five-year program: successful completion of 30 hours of the M.S. in Applied Physics and Computer Science degree program course work. A minimum of 21 hours must be earned while in graduate status;
- An overall graduate grade point average of 3.00 in all CNU courses submitted for graduate credit with no more than two grades of ***C;***
- Successful completion of the comprehensive examination.

Graduate Assistantships

Screening of applicants wishing to be considered for graduate assistantships will begin on May 1 for the following fall semester. See page 33 of the catalog for specific terms, criteria and procedures. Applications are available on the department's web site: http://www.pcs.cnu.edu

For further information:

Contact the APCS Graduate Program Coordinator, **Dr. Antonio Siochi**, at **(757) 594-7569 or siochi@pcs.cnu.edu or *http://www.pcs.cnu.edu***

COMPUTER SCIENCE CONCENTRATION

Academic Prerequisites

All applicants should have completed a three-semester sequence in mathematics including at least two semesters of calculus and programming including data structures. It is assumed that these courses are at least at the level of the following texts: Anton, *Calculus*; Liang, *Java Programming*; Aho, Hopcroft and Ullman, *Data Structures*; Mano, *Computer Engineering*. Students who do not have all prerequisites may, in some cases, be allowed to take a graduate independent study course to develop the necessary background for further graduate work.

Computer Science Concentration
Program of Study 30-36 Credits

Core Courses (12 credits)

Select any four courses from the following list:

CPSC 501	Software System Design and Implementation (3)
CPSC 502	Communications I (Computer Networks) (3)
CPSC 510	Artificial Intelligence I (3)
CPSC 521	Computer Architecture (3)
CPSC 550	Distributed Operating Systems (3)

Concentration Courses (12 credits)

Select any four courses meeting the following requirements:

1. All courses must be from the M.S. in Applied Physics and Computer Science program.
2. At least two of the courses must be 600 level courses.
3. Completion of a second course in at least one of the following sequences.

Each sequence prepares a student for a possible thesis in a given area.

Artificial Intelligence Emphasis

CPSC 510	Artificial Intelligence I (3) (Core Course)
CPSC 642	Artificial Intelligence II (3)

Communications Emphasis

CPSC 502	Communications I (3) (Core Course)
CPSC 611	Communications II (3)

Software Engineering Emphasis

CPSC 501	Software System Design and Implementation (3) (Core Course)
CPSC 525	Object Oriented Programming and Design (3)

Design Course (Thesis Preparation) and Thesis (6 credits)

PCSE 698	Prethesis (3) Students in this course are required to attend all theses proposals and defenses that occur during the course.
PCSE 699	Thesis Research (3) Can be taken only upon successful completion of PCSE 698 Prethesis. PCSE 699,Thesis Research, may be taken in one-credit increments.

OR

Non-Thesis Option (12 credits)

12 credit hours of electives from the M.S. in Applied Physics and Computer program

Total **30 credits** (Thesis) **OR** **36 credits** (Non-Thesis)

COMPUTER SYSTEMS ENGINEERING AND INSTRUMENTATION CONCENTRATION

Academic Prerequisites

All applicants should have completed a two-semester sequence in physics, including mechanics and at least two labs; a five-semester sequence in mathematics including calculus, matrix methods, and differential equations; programming including data structures; a course in computer organization and architecture; and a course with a lab in circuit analysis. It is assumed that these courses are at least at the level of the following texts: Serway, *Classical and Modern Physics*; Anton, *Calculus*; Williams, *Linear Algebra with Applications*; Boyce and DiPrima, *Ordinary Differential Equations*; Liang, *Java Programming*; Aho, Hopcroft and Ullman, *Data Structures*; Mano, *Computer Engineering*; Hayt and Kemmerly, *Circuit Theory*.

Computer Systems Engineering and Instrumentation Concentration Program of Study 30-36 Credits

Core Courses (12 credits)

PHYS 521	Computer Architecture (3)
CPSC 501	Software System Design and Implementation (3)
CPSC 502	Communications I (Computer Networks) (3)
CPSC/PHYS	Any course listed in the Applied Physics core

Concentration Courses (12 credits)

Select any four courses from the following list: (at least two must be 600 level)

PHYS 503	Data Acquisition and Instrumentation (3)
PHYS 522	Microprocessor-based Systems (3)
PHYS 621	Digital Signal Processing (3)
CPSC 525	Object Oriented Programming and Design (3)
CPSC 550	Distributed Operating Systems (3)
CPSC 611	Communications II (3)
CPSC 621	Parallel Processing (3)

Design Course (Thesis Preparation) and Thesis (6 credits)

PCSE 698	Prethesis (3) Students in this course are required to attend all theses proposals and defenses that occur during the course.
PCSE 699	Thesis Research (3) Can be taken only upon successful completion of PCSE 698 Prethesis. PCSE 699Thesis Research may be taken in one-credit increments.

OR

Non-Thesis Option (12 credits)

12 credit hours of electives from the M.S. in Applied Physics and Computer program

Total **30 credits** (Thesis) **OR** **36 credits** (Non-thesis)

APPLIED PHYSICS CONCENTRATION

Special Features of the Concentration

The Applied Physics curriculum presents the foundation theories of the physical world: mechanics, electromagnetism, thermodynamics, quantum mechanics, optics, and solid state. Students use these models in two computational courses and in their theses where they construct simulations of physical systems, analyze physical systems or design smart sensors, and then display the results of these efforts by using state-of-the-art techniques in computer graphics. This emphasis on fundamental concepts and on computational techniques of modeling and simulation is complemented by the experimental procedures that undergird current practice in data acquisition. As a result, students experience the entire range of effective problem-solving practices: data acquisition and data storage, and data analysis based on the fundamental physical models and graphical display of the results of the analysis.

For students with special interests and with established backgrounds in physics or engineering, the curriculum offers a versatility that allows students, in concert with their faculty advisers, to tailor graduate programs to suit their own professional goals by combining CNU courses with the offerings at the Virginia Consortium of Engineering and Science Universities (VCES).

Academic Prerequisites

All applicants should have completed a three-semester sequence in physics including modern physics and at least two labs; a five-semester sequence in mathematics including calculus, matrix methods and differential equations; programming including data structures; and a course with a lab in circuit analysis. It is assumed that these courses are at least at the level of the following texts: Serway, *Classical and Modern Physics*; Anton, *Calculus*; Williams, *Linear Algebra with Applicatio*ns; Boyce and DiPrima, *Ordinary Differential Equations*; Liang, *Java Programming*; Aho, Hopcroft and Ullman, *Data Structures*; Hayt and Kemmerly, *Circuit Theory.*

Applied Physics Concentration
Program of Study 30-36 Credits

Core Courses (12 credits)

PHYS 501 Models of Dynamical Systems (3)
PHYS 503 Data Acquisition and Instrumentation (3)
PHYS 504 Electromagnetic Theory (3)
PHYS 541 Modeling and Simulation (3)

Concentration Courses (12 credits)

Select any four courses from the following list:

PHYS 502 Quantum Physics (3)
PHYS 506 Thermodynamics and Statistical Physics (3)
PHYS 531 Optical Physics (3)
PHYS 634 Solid State Materials and Devices (3)
MATH 580 Advanced Numerical Analysis (3)

Design Course (Thesis Preparation) and Thesis (6 credits)

PCSE 698 Prethesis (3)
Students in this course are required to attend all theses proposals and defenses that occur during the course.

PCSE 699 Thesis Research (3)
Can be taken only upon successful completion of PCSE 698 Prethesis.
PCSE 699Thesis Research may be taken in one-credit increments.

OR

Non-Thesis Option (12 credits)

12 credit hours of electives from the M.S. in Applied Physics and Computer program

Total **30 credits** (Thesis) **OR** **36 credits** (Non-thesis)

Five-Year BS/MS Program in Applied Physics and Computer Science

This five-year program leads to both a Bachelor of Science and a Master of Science in Applied Physics and Computer Science. The Master of Science curriculum has concentrations in Computer Science, Computer Systems Engineering and Instrumentation, and Applied Physics that correspond to the undergraduate majors of Computer Science, Computer Engineering, and Applied Physics. By continuing an extra year to obtain the M.S. degree, a student's lifetime earnings and the potential for diverse opportunities and job satisfaction increase significantly.

Admission and Program Requirements

Admission

Criteria for student admission into a five-year program:

a) Undergraduate cumulative GPA of 3.0 or higher.
b) GPA in the student's major of at least 3.0.
c) Submit one of the following exam scores:
   i) A minimum SAT Score of 1100 with a minimum of 530 in the verbal and quantitative sections (must be less than five years old); **OR**
   ii) ACT Score of a composite score of 24, with the ACT math score no less than 22, and an English plus Reading score no less than 46; **OR**
   iii) A Graduate Record Examination (GRE) General Test Score of at least 950 for Verbal and Quantitative sections combined is required and a score at or above 1000 is highly desirable. GRE scores are used as one of several indicators of the applicant's ability to succeed in graduate studies.
d) Two letters of recommendation. One must be from a faculty member in the major who has taught or mentored the student in a major course or research project.
e) A Program of Study for the five-year program approved by the student's advisor.
f) Students apply for admission to a five-year program by February 1st of the junior year.

Program Requirements

a) To continue in the five-year program a student must maintain a 3.0 GPA, and remain in good standing by earning a grade of ***B-*** or better in any graduate course taken while in the undergraduate status.
b) If an undergraduate student in a five-year program earns a single grade of ***F*** or two grades of ***C+*** or lower in a graduate level course(s), that student will not be allowed to continue in the five-year program and the offer of admission to the graduate program will be rescinded.
c) During the senior year, the five-year student will enroll in six graduate credit hours that will be transferred to the graduate transcript. The student will be responsible for completing 120 credits for the undergraduate degree plus six graduate credits.
d) Upon completion of the normal requirements in their respective undergraduate programs, a baccalaureate degree will be awarded to the student.

Graduate Course Hours

Graduate credit hours taken as a five-year B.S./M.S. **undergraduate** are subject to the following requirements:

a) A maximum of nine hours of graduate credit will be allowed while classified as an undergraduate.
b) All courses must be approved by the student's advisor.
c) The student will be held to the same standards in these classes as any other graduate student.

d) To continue to take graduate courses as an undergraduate, a student must complete each graduate course with a grade of ***B-*** or better.

e) Graduate cross-listed courses will count toward the student's major requirements in exactly the same way that the corresponding undergraduate cross-listed courses would count. If a graduate course, which is not cross-listed, is used to satisfy a requirement of the undergraduate major then the student must get the course substitution approved by the department chair to substitute the graduate course for a required course in the major (Ref: *Authorization for Course Substitution* form).

f) Students in the five-year program who have completed six graduate credits eligible for transfer to the graduate transcript as an undergraduate will be required to take an additional 24 graduate hours, 12 credits in fall semester and 12 credits in spring semester.

g) The number of credit hours on the graduate transcript must total at least 30 overall.

Course of Study

a) At the graduate level, the student will enroll in 12 graduate credits for both fall and spring semesters. Six eligible graduate credit hours taken in the senior year will be moved to the graduate transcript to total 30 graduate credit hours. (See example below.)

b) For the five-year students the non-thesis option requires 30 graduate credits. The students accepted into the five-year program will be encouraged to do the non-thesis option in order to complete the degree within the five years. The thesis option, which is also 30 credits, is more difficult to do within this time frame. For those students who enter the traditional master's program, the non-thesis option requires 36 credits.

c) Students accepted into the five-year program are required to follow the course of study shown below in order to complete the curriculum within five years.

Example of Five-year Program Course of Study

Five-year student takes **six** graduate credit hours while in undergraduate status

Undergraduate Status

6 credits	Graduate Courses taken in senior year (to be moved to Graduate Transcript)
120 credits	Undergraduate Courses
126 credits	Total

Graduate Status

6 credits	Graduate Courses transferred from Undergraduate Transcript
12 credits	Fall
12 credits	Spring
30 credits	Total for MS in APCS

Further information about this program may be found at
http://academics.cnu.edu/graduateAndFiveYearPrograms.cfm .

M.S.IN APPLIED PHYSICS AND COMPUTER SCIENCE COURSES OF INSTRUCTION

PHYSICS

PHYS 501. Models of Dynamical Systems (3-3-0)
Prerequisites: Math through differential equations and graduate standing in the department or permission of the instructor. (Fall)
The classical models of physical phenomena, the modern perspective on their analytic and qualitative solutions and the insights that numerical analysis of the models gives to expected behaviors of dynamical systems. Computer analysis and graphical representation of solutions for regular and chaotic dynamical systems.

PHYS 502. Quantum Physics (3-3-0)
Prerequisites: PHYS 501 and graduate standing within the department or permission of instructor. (Even Spring)
Study of the formulation of quantum physics and the use of computers to analyze quantum mechanical systems. Topics include the postulates of quantum physics, the Shroedinger equation, indeterminacy, the Heisenberg representation, angular momentum, internal degrees of freedom, the hydrogen atom, perturbation theory, quantization of the EM field and radiative transitions.

PHYS 503. Data Acquisition and Instrumentation (3-3-0) *Prerequisites: Graduate standing within the department or permission of instructor. (Even Fall)*
Data reduction and error analysis. Computer-controlled data acquisition systems in the laboratory. The use of a case study to develop a measurement system. Noise in electronic systems. Introduction to signal processing. Students are required to complete a project that includes an implementation of a measurement system and data reduction of the results.

PHYS 504. Electromagnetic Theory (3-3-0)
Prerequisites: PHYS 304 or MATH 350; graduate standing within the department or permission of instructor. (Spring)
Review of electrostatics and magnetostatics. Maxwell's equations and time varying fields: wave propagation and polarization, waveguides and cavities and radiating systems. Computer programs for the solution of problems will be emphasized.

PHYS 506. Thermodynamics and Statistical Physics (3-3-0)
Prerequisites: Graduate standing within the department or permission of instructor. (Odd Spring)
Review of thermodynamics followed by advanced topics in thermodynamics: first-order phase transitions, maximum work theorem, Legendre transformations, critical phenomena and irreversible thermodynamics. Statistical mechanics: entropy representation, microcanonical, canonical, grand canonical formalisms, quantum fluids and fluctuations. Use of the computer in the analysis and presentation of technical problems.

PHYS 521. Computer Architecture (3-3-0)
Prerequisites: Graduate standing within the department or permission of instructor. (Spring)
Advanced issues and techniques in computer architecture and design. Instruction set design and performance impact. Architectural simulation using VERILOG. Pipelining. Computer arithmetic and vector processors. Advanced memory and cache design. I/O interfaces for high performance. Students may not take both PHYS 521 and 523.

PHYS 522. Microprocessor-based Systems (3-3-0)
Prerequisites: Graduate standing in the department or permission of the instructor. (Fall)
Focus on microprocessor-based computer architectures. Hardware topics include studies of several microprocessor architectures, memory, peripheral interfaces and buses. Software issues include I/O and interrupt handling and microprocessor development systems. Students may not take both PHYS 522 and 524.

PHYS 523. Computer Architecture, Advanced Topics (1-1-0) *Prerequisites: ENGR 414 or equivalent.*
A one-credit course in advanced computer architecture for students with a solid undergraduate background in the topic. Students may not take both PHYS 521 and 523.

PHYS 524. Microprocessor-based Systems, Advanced Topics (1-1-0) *Prerequisites: PHYS 422 or equivalent.*
A one-credit course in advanced microprocessor-based systems for students with a solid undergraduate background in the topic. Students may not take both PHYS 522 and 524.

PHYS 531. Optical Physics (3-3-0)
Prerequisites: Graduate standing in the department or permission of the instructor.
This course lays the foundation of modern optical science. It presents an overview of the properties of light and its interaction with matter and describes basic principles for control and detection of light beams. Provides an introduction to optical spectroscopy. The use of computer software for optical analysis is emphasized.

PHYS 541. Modeling and Simulation (3-3-0)
Prerequisites: PHYS 501, PHYS 502, MATH 580, CPSC 501, C or FORTRAN 90.
The modeling and simulation of physical systems. Applying software methodologies to the solution of physical problems. Lectures typically involve a short review of a physics topic such as Keplerian motion, followed by an extensive discussion on the modeling and/or simulation

of the problem. A large component of the course is a project. Students are able to "design" their own project, drawing from any area in the complete spectrum of physics curriculum. The project might entail modeling physical systems (ex: mechanics, optics, fluids, waveguides, atmospheric propagation or nonlinear system). Or, the student may choose to write a stimulation (ex: interplanetary spaceflight, orbital adjustment and insertion or powered flight). Substantive, additional work in the form of more advanced assignments and projects are required to distinguish this class from the cross-listed class.

PHYS 595. Advanced Topics in Physics (Credit varies)
Course topics are selected on the basis of faculty and student interests.

PHYS 599. Independent Study. 1- 3 Credits.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

PHYS 621. Digital Signal Processing (3-3-0)
Prerequisites: PHYS 503, PHYS 522. (Odd Fall)
This course covers the principles of digital signal processing beginning with the sampling process on through digital filter design. Advanced topics include approximation effects, inverse filtering and hardware implementation structures. The course correlates theoretical aspects presented in the classroom with practical experimentation and design in a laboratory setting using commercial DSP hardware.

PHYS 631. Physics of Solids (3-3-0)
Prerequisites: PHYS 502 and PHYS 506 or permission of instructor.
Introduction to the physics of solids at the graduate level. Quantum ideas are emphasized to provide a better understanding of the properties of solids. Topics include crystal structure, electrons in a periodic potential, Fermi surface and band theory, lattice dynamics, phonons, semiconductors and magnetism.

PHYS 632. Lasers and Photonics (3-3-0)
Prerequisites: PHYS 631.
This course provides a survey of fundamental optical properties of matter and how they are employed in modern optical devices. The course focuses on laser physics and the varied use of lasers in meteorology. Includes a discussion of optical fibers for use in communications and sensors.

PHYS 634. Solid State Materials and Devices (3-3-0)
Introduction to theory of the solid state. Application of the theory to describe the behavior of solid state materials such as superconductors and optical elements that form the building blocks of devices. Overview of applications of these devices. Laboratory experimentation.

PCSE 698. Prethesis (3-3-0)
Prerequisites: Completion of 6 hrs. of program requirements.
A design course to integrate knowledge acquired in the program into a research/design effort and to serve as a structure for beginning the research/design effort. Each student presents a thesis proposal and is examined orally on topics related to his or her proposal. During this thesis proposal/oral comprehensive exam, students must demonstrate a basic knowledge in areas related to their proposed thesis to receive a passing grade. Students in this course are required to attend all thesis proposal presentations and all thesis defense presentations that occur during the course.

PCSE 699. Thesis Research (3 Credits)
Prerequisite: Successful completion of PCSE 698
Students in this course are required to attend all thesis proposals and defenses that occur during the course.

COMPUTER SCIENCE

CPSC 501. Software System Design & Implementation (3-3-0) *Prerequisites: Graduate standing or permission of the instructor. (Fall)*
The management, specification, design, implementation and documentation of complex software systems. A paper or class presentation based on independent reading of research papers concerning new developments in software engineering are required. Students are expected to learn to use software systems such as CASE tools.

CPSC 502. Communications I (3-3-0)
Prerequisites: Graduate standing and ability to program in C or C++, or permission of the instructor. (Spring)
A comprehensive view of data communications with an emphasis on computer networks. Baseband and broadband local area networks, OSI model, logical link protocols, media with an emphasis on fiber-based interfaces, topology and routing/flow control. TCP/IP protocols and socket-based application development are emphasized.

CPSC 510. Artificial Intelligence I (3-3-0)
Prerequisites: Graduate standing within the department. (Fall)
The purpose of this course is to introduce students to the basic elements of artificial intelligence with an emphasis on applications such as neural nets and heuristic search.

CPSC 521. Computer Architecture (3-3-0)
Prerequisites: Graduate standing within the department or permission of instructor. (Spring)
Advanced issues and techniques in computer architecture and design. Instruction set design and performance

impact. Architectural simulation using VERILOG. Pipelining. Computer arithmetic and vector processors. Advanced memory and cache design. I/O interfaces for high performance.

CPSC 525. Object Oriented Programming & Design (3-3-0) *Prerequisites: Graduate standing or permission of the instructor. (Spring)*
Basic object-oriented design and applications. This course introduces object-oriented design methods and provides guidance in the effective implementation of object oriented programs. Substantive, additional work in the form of more advanced assignments and projects are required to distinguish this class from the cross-listed course.

CPSC 550. Distributed Operating Systems (3-3-0)
Prerequisites: Graduate standing within the department. (Spring)
A study of operating systems with emphasis on distributed systems and intra-system communications. Substantive, additional work in the form of more advanced assignments and projects are required to distinguish this class from the cross-listed course.

CPSC 560. Introduction to Compilers (3-3-0)
(Even Spring)
A study of the problems of translating procedure oriented languages; lexicographic analysis, syntax checking, code generation and optimization, error detection and diagnostics. Substantive, additional work in the form of more advanced assignments and projects are required to distinguish this class from the cross-listed course.

CPSC 570. Theoretical Computer Science (3-3-0)
Prerequisites: Graduate standing within the department. (Fall)
Presentation of basic results relating to formal models of computation. Emphasis is placed on developing skills in understanding rigorous definitions in computing and in determining their logical consequences. Substantive, additional work in the form of more advanced assignments and projects are required to distinguish this class from the cross-listed course.

CPSC 585. Principles & Applications of Multimedia (3-3-0) *Prerequisites: Graduate standing with the department. (Fall)*
The purpose of this course is to learn the principles and techniques of multimedia, focusing on digital images and audio in print and online form. Technical topics include the nature of sound and images and their digital representation and multimedia relevant web protocols. The course also addresses copyright issues, graphic design and human interface principles. A semester project is required.

CPSC 595. Advanced Topics in Computer Science (Credit varies)
Course topics are selected on the basis of faculty and student interests.

CPSC 599. Independent Study. 1-3 Credits.
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

CPSC 611. Communications II (3-3-0)
Prerequisite: CPSC 502. (Even Fall)
Analysis of communication systems through the application of queuing theory results and the modeling and simulation of these systems by state-of-the-art network simulation tools. Client/server network software strategies with an emphasis on RPC.

CPSC 621. Parallel Processing (3-3-0)
Prerequisite: CPSC 521 or PHYS 521. (Odd Fall)
Advanced topics in concurrent processor design. Memory and I/O structures for high performance and parallel architectures. Comparison of vector processing machines. SIMD architectures and algorithms. MIMD architectural options. Centralized vs. distributed memory. Shared memory vs. message passing. Algorithms for different MIMD machines. Parallel programming.

CPSC 642. Artificial Intelligence II (3-3-0)
Prerequisites: CPSC 510, or permission of the instructor. (Odd Spring)
Topics in artificial intelligence. Content will vary. Possible topics include advanced neural nets, qualitative reasoning and natural language processing.

CPSC 681. Principles and Applications of Image Processing (3-3-0) *Prerequisites: CPSC 585 and CPSC 510, or permission of the instructor.*
The purpose of this course is to learn the principles and techniques of digital image processing and computer vision. Technical topics include: image fundamental, image enhancement in the spatial and frequence domains, restoration, color image processing, wavelets, image compression, morphology, segmentation, image description, and the fundamentals of object recognition. The course will also address image processing in Java and image processing library in C++. A semester proposal is required.

MATHEMATICS

MATH 580. Advanced Numerical Analysis (3-3-0)
The course covers a range of topics in numerical analysis concentrating on an introduction to finite elements and their applications. Use of a software package and research journal readings are required.

M.S. IN ENVIRONMENTAL SCIENCE

The Master of Science in Environmental Science is an applied program designed to meet the needs of a wide variety of students, including those already working in the environmental field or those just completing their baccalaureate education. Both thesis and non-thesis options are available as well as a Five-year BS/MS Program. Evening classes are offered; some labs are available on weekends.

The Department of Biology, Chemistry, and Environmental Science is actively engaged in research projects and in teaching a full complement of coursework. We encourage student involvement in our applied and basic research and enjoy guiding students through their own particular areas of research interest. Located in the environmentally rich coastal plain of Virginia, there is access to a variety of excellent field research sites. The department conducts research at ecological study sites in Canada, Utah, Nevada, Blue Ridge Mountains of Virginia, piedmont rivers of Virginia, Hoffler Creek Nature Preserve in Portsmouth, the Great Dismal Swamp National Wildlife Refuge, and aquatic research at Lake Maury close to the CNU campus.

All course offerings are taught in the 16,000 square foot science building containing 14 laboratories and 23 support areas. Three walk-in controlled environment chambers, a greenhouse, and a fleet of boats complement the facilities. Additional laboratory research space is available at the nearby Applied Research Center.

Dr. Gary Whiting
Graduate Program Coordinator
gwhiting@cnu.edu
238 Science Building
(757) 594-7613

Master of Science in Environmental Science

The Master of Science in Environmental Science is designed for current and prospective students in the rapidly growing field of environmental monitoring and conservation. This degree program is flexible enough to fit the interests and needs of a wide variety of students and is designed for students planning to pursue a Ph.D., teachers desiring a M.S. in a biological science, or students interested in careers involving environmental assessment, monitoring and conservation.

The core courses are those mentioned most frequently by employers, consultants and educators as those needed for successful employment. The remainder of the curriculum is designed to enhance the understanding of ecosystem ecology, the conservation of organisms and their environment, and environmental chemistry. Many of these courses involve or consist entirely of fieldwork, since the majority of the employers surveyed are seeking graduates with first-hand knowledge of analyzing the environment.

Admission Requirements for Degree-seeking Students

1. A baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 3.00 on a 4.00 scale.
2. An official transcript from the baccalaureate institution with the degree posted, and official transcripts for all graduate work taken at other institutions.
3. Three letters of recommendation from people who can attest that the applicant is likely to be successful in graduate level academic work. All recommendations must arrive in unopened envelopes with the reference's signature across the envelope flap.
4. Scores from the Graduate Record Examination General Test taken within five years prior to the date of admission. Graduate Record Examination (GRE) score at or above 950 cumulative on the Verbal and Quantitative sections is required, and a score at or above 1000 is preferred. GRE scores are used as one of several indicators of the applicant's ability to succeed in graduate studies. For applicants already holding a master’s degree, the GRE may be waived by permission of the Director of Graduate Studies. A letter to the Director of Graduate Studies requesting a waiver is required.

Academic Policy for Non-degree Students

Students seeking non-degree admission status must have a grade point average of at least 3.0 on a 4.0 scale. Non-degree students are limited to 12 hours of graduate study. Up to 12 credits of graduate study may be applied to the graduate degree should a non-degree student apply and be accepted to degree-seeking status. Should a non-degree student desire additional courses beyond the 12-credit limit, he or she may petition the Graduate Program Coordinator for a waiver of this limit. Non-degree seeking students must meet the prerequisites before enrolling in a graduate course or obtain the consent of the instructor. Admission requirements for non-degree students are found on page 14 of this catalog.

Changing from Non-degree Status to Degree-seeking Status

A non-degree student may apply to change to degree-seeking status if he or she:

- has completed 12 hours of CNU graduate courses with a cumulative 3.0 GPA or higher,
- has a status of Good Academic Standing, and
- has submitted passing scores from the Graduate Record Exam.

To apply, submit the ***Request for Change to Degree-seeking Status*** **form** to Graduate Admissions along with the documentation listed in Admissions Requirements for Degree-Seeking Students shown on this page.

Academic Prerequisites

Students will provide evidence of satisfactory completion of the following undergraduate courses: complete sequences of general and organic chemistry, general ecology, botany, zoology, cell or molecular biology, genetics, microbiology, and statistics.

Goals of the Program

The curriculum of this program will contribute to the achievement of instructional goals in the following areas:

1. Solid background in ecological and environmental conservation theory;
2. Skills required for employment with environmental assessment/monitoring businesses, and state and federal governmental agencies;
3. Research and technical writing skills;
4. Preparation for further graduate work.

Curriculum

The Master of Science in Environmental Science degree program consists of thesis or non-thesis options. Many courses feature a prominent laboratory or field component in order to teach analytical and practical skills, while other courses are designed to build research and technical writing skills. The remainder of the course offerings is designed to enhance the understanding of ecology and the natural history of organisms. Many of the courses involve, or consist entirely of, fieldwork since employers are seeking graduates with first-hand knowledge of the environment and environmental assessment methods. Late afternoon and evening courses are available. Most courses beyond the core courses may be taken in any sequence.

Thesis Option

The thesis option is a 33-hour program that requires 7 hours of core courses, 20 hours of concentration courses (chosen with the guidance of the student's advisor and thesis committee), and 6 hours of thesis research. An oral presentation and defense of the written thesis are required.

Non-Thesis Option

The non-thesis option is a 36 hour program which consists of 7 hours of core courses, 26 hours of concentration courses designed with the guidance of the student's advisor and committee, and 3 hours of project research. Non-thesis project research, typically limited in scope and with a reduced time demand than the thesis, will be designed under the supervision of the advisor and committee. An oral report and written report of the completed project are required.

Graduation Requirements

Thesis Option

- Successful completion of 27 hours (minimum) of the M.S. in Environmental Science degree program course work and 6 hours of thesis (ENVS 699);
- Cumulative graduate grade point average of 3.00 in all CNU courses submitted for graduate credit with no more that two grades of ***C;***
- Successful completion of the comprehensive examination;
- Successful defense of thesis and presentation of the appropriate number of approved copies to the Office of Graduate Studies by the published deadline;
- Presentation of an electronic copy of the thesis to the chair of the committee in an acrobat.pdf format on CD suitable for archive purposes only.

Non-Thesis Option

- Successful completion of 33 hours (minimum) of the M.S. in Environmental Science degree program course work and 3 hours of non-thesis project (ENVS 599); ;
- Cumulative graduate grade point average of 3.00 in all CNU courses submitted for graduate credit with no more that two grades of ***C;***
- Successful completion of the comprehensive examination;
- Oral presentation and written copy of project to advisor and committee;
- Presentation of an electronic copy of project to the chair of the committee in an acrobat.pdf format on CD suitable for archive purposes only.

Internships and Graduate Assistantships

Graduate assistants are employed to conduct research, perform administrative activities, and/or teach as directed by the graduate faculty within the department. The position requires a weekly time commitment and is awarded on a competitive basis. To qualify, a student must be a degree-seeking student with no limits or provisions, be enrolled in 6-9 graduate credit hours in the semester of the award. Contact the Graduate Program Coordinator for details. Additional information is on page 33 of this catalog.

Internships with environmental departments of municipalities, resource agencies, laboratories, and engineering firms are available. The student gains practical experience in a work place environment learning detailed methods of site evaluation, environmental assessment and technical report preparation. Many of the internships offer financial support to the student.

Master of Science in Environmental Science
Program of Study 33-36 Credits

Core Courses (7 credits)

ENVS 505	Technical and Scientific Writing (2)
ENVS 510/510L	Biometry & Lab (5)

Concentration Courses (20 credits for Thesis Option OR 26 credits for Non-Thesis Option)

ENVS 518	Biological Conservation: Theory and Practice (3)
ENVS 519	Restoration Ecology (3)
ENVS 522	Summer Field Studies (2)
ENVS 525	Environmental Regulations (3)
ENVS 530	Biogeography (3)
ENVS 532/532L	Wetlands Ecology & Lab (4)
ENVS 534/534L	Marine Ecology & Lab (4)
ENVS 535/535L	Ornithology & Lab (4)
ENVS 536/536L	Terrestrial Ecology & Lab(4)
ENVS 538/538L	Limnology and Aquatic Biology& Lab (4)
ENVS 540/540L	Environmental Microbiology& Lab (4)
ENVS 541	Urban Wildlife (3)
ENVS 545/545L	Mammalogy & Lab (4)
ENVS 550	Global Change (3)
ENVS 555/555L	GIS & Spatial Analysis Techniques & Lab (4)
ENVS 590	Topical Seminars in Environmental Science (1-4 cr.)
CHEM 543	Atmospheric Chemistry (3)
CHEM 545/545L	Instrumental Methods in Environmental & Lab (4)
CHEM 555/555L	Environmental Instrumental Analysis & Lab (4)
CHEM 565	Environmental Chemistry (3)

Thesis or Project (6 credits for Thesis Option OR 3 credits for Non-Thesis Option)

ENVS 699	Thesis Research (6)
ENVS 689	Project Research for Non-thesis (3)

TOTAL **33 credits** (Thesis) **OR** **36 credits** (Non-Thesis)

Five-Year BS/MS Program in Environmental Science

The Master of Science in Environmental Science is designed for current and prospective students in the rapidly growing field of environmental monitoring and conservation. This Five Year Program leads to both a Bachelor of Science and a Master of Science in Environmental Science and provides a solid background in ecological and environmental conservation theory.

This degree program is flexible enough to fit the interests and needs of a wide variety of students and is designed for students planning to pursue a Ph.D., teachers desiring a Master of Science in a biological science, or students interested in careers involving environmental assessment, monitoring, or conservation.

How and When to Apply

After completion of 30 credit hours of undergraduate study, complete the *Statement of Intent* to participate in the Five Year Program. In this Statement, the student and his/her undergraduate advisor design a tentative five-year course schedule and discuss the objectives and requirements of the program. This form is distributed to the faculty advisor and the Graduate Program Coordinator.

After completion of 65 credit hours of undergraduate study, the application to the Five-Year BS/MS Program is submitted no later than February 1 of the junior year. The *Application for Admission to the Five Year Program* is available from the BCES Graduate Program Coordinator. The application for admission is reviewed by a Graduate Admissions Committee and the Office of Graduate Studies.

Requirements for Admission

Criteria for student admission into the Five-Year Program:

a) Undergraduate cumulative GPA of 3.0 or higher.
b) GPA in the student's major of at least 3.0.
c) Submission of one of the following:
    i) A minimum SAT Score of 1100 with at least 530 in the verbal and quantitative sections (must be less than five years old)**;**
    ii) ACT Score of a composite score of 24, with the ACT math score no less than 22, and an English plus Reading score no less than 46;
    iii) Graduate Record Examination (GRE) General Test score at or above 950 for the Verbal and Quantitative sections combined. GRE scores are used as one of several indicators of the applicant's ability to succeed in graduate studies.
d) Two letters of recommendation. One must be from a faculty member in the major who has taught or mentored the student in a major course or research project.

Program Requirements

a) Upon acceptance into the Five-Year Program, students work with their academic advisors and the Graduate Program Coordinator to determine a specific Program of Study. The Program of Study must be filed with the Office of Graduate Studies. Students begin taking graduate courses in their senior year at CNU.
b) To continue in the Five-Year Program a student must maintain a 3.0 GPA, and remain in good standing by earning a grade of ***B-*** or better in any graduate course taken while in the undergraduate status.
c) If an undergraduate student in a Five-Year Program earns a single grade of ***F*** or two grades of ***C+*** or lower in a graduate level course(s), that student will not be allowed to continue in the Five-Year Program and the offer of admission to the graduate program will be rescinded.

d) Upon completion of the normal requirements in the student's undergraduate program, a baccalaureate degree will be awarded to the student.

Graduate Course Hours

Graduate credit hours taken as a Five-Year B.S./M.S. undergraduate are subject to the following requirements:

a) A maximum of nine (9) hours of credit will be allowed while classified as an undergraduate.
b) All courses must be approved by the student's advisor and be part of the student's Plan of Study.
c) The student will be held to the same standards in these classes as a graduate student.
d) To continue to take graduate courses as an undergraduate, a student must complete each course with a grade of B- or better.
e) Graduate cross-listed courses will count toward the student's major requirements in exactly the same way that the corresponding undergraduate cross-listed courses would count. If a graduate course, which is not cross-listed, is used to satisfy a requirement of the undergraduate major then the student must get the course substitution approved by the department chair to substitute the graduate course for a required course in the major. Any graduate level course used to satisfy undergraduate major requirements will not be eligible to be transferred to the graduate transcript.
f) Five-year students are required to do the thesis option in order to complete the curriculum within the five years.
g) Students in the five-year program who have taken graduate courses (up to 9 credit hours) as undergraduates will have 6 graduate credits moved to their graduate transcripts and will be required as graduate students to take a minimum of 24 graduate credits for the M.S. in Environmental Science thesis track (see example below).
h) The number of credit hours on the graduate transcript must total at least 30 overall.

Example of Five-year Program Course of Study

Example: Five-year student takes **nine** graduate credit hours while in undergraduate status

Undergraduate Status

9 credits	Graduate Courses taken in senior year (6 credits to be moved to Graduate Transcript)
117 credits	Undergraduate Courses
126 credits	Total

Graduate Status

6 credits	Graduate Courses transferred from Undergraduate Transcript
2 credits	Summer
12 credits	Fall
10 credits	Spring
30 credits	Total for MS in ENVS

Further information about this program may be found at ***http://bces.cnu.edu/fiveyearprogram.html*** and a Suggested Course Schedule for the Five-Year Program may be found at ***http://bces.cnu.edu/fiveyearschedule.htm .***

M.S. IN ENVIRONMENTAL SCIENCE
COURSES OF INSTRUCTION

ENVIRONMENTAL SCIENCE

ENVS 505. Technical and Scientific Writing (2-2-0)
This course discusses the fundamentals of technical writing with consideration of other types of scientific writing. The stylistic and mechanical problems characteristic of technical writing are considered and worked on individually and in groups. Students write and edit journal articles.

ENVS 510. Biometry (3-3-0)
Corequisite: ENVS 510L
The application of statistical methods to biological problems. Experimental design, data acquisition, single and multiple analysis of variance, regression and correlation are covered. Test selection and modeling are also included.

ENVS 510L. Biometry Laboratory (2-0-3)
Corequisite: ENVS 510.
Develops skills in the use of statistical software packages including relational databases.

ENVS 518. Biological Conservation: Theory and Practice (3-3-0)
Biological conservation is a relatively new, applied discipline having more ethical and sociopolitical ramifications than is typical of non-medical scientific disciplines. This course covers the development of conservation theory, biodiversity and problems of determining and evaluating biodiversity, relevant ecological principles, and ethical and economic issues. The course considers current conservation problems and the methods and strategies. The first part of the course is in lecture format and the second part is in seminar format.

ENVS 519. Restoration Ecology (3-3-0)
This course familiarizes the student with the newly emerging science of restoration ecology, including its theoretical foundation and its application in today's world. The first part of the course concerns case studies and the second part of the course, in seminar format, concerns recently published studies found in the peer-reviewed literature.

ENVS 522. Summer Field Studies (2-0-2)
A one-week field camp in selected habitats emphasizing application of field data gathering and processing techniques to the solving of multifaceted environmental problems. Travel, camping and boat work required. An additional day on campus is required for student presentations.

ENVS 525. Environmental Regulations (3-3-0)
A seminar designed to explore current environmental regulations and their impact on various constituents.

ENVS 530. Biogeography (3-3-0)
The study of the patterns of distributions of organisms, both past and present, and the abiotic and biotic factors that produced those distributions.

ENVS 532. Wetlands Ecology (4-3-0)
Corequisite: ENVS 532L
A study of the structure and function of wetland systems from salt to fresh and tropical to the arctic. Concepts will cover hydrology, biogeochemistry, wetland development and succession. Wetland delineation, management, creation and restoration apply these concepts.

ENVS 532L. Wetlands Ecology Laboratory (0-0-4)
Corerequisite: ENVS 532
Field exercises in local wetlands applying principles from lecture.

ENVS 534. Marine Ecology (4-3-0)
Corequisite: ENVS 534L
Ecology of the disturbed and non-disturbed marine environment. Topics covered include: global distribution of marine organism and the factors influencing their distribution, plankton ecology, the benthos, salt marsh and sea grass ecology, rocky shore and coral reef ecology, human exploitation and interference in marine habitats, and sampling techniques in marine systems.

ENVS 534L. Marine Ecology Laboratory (0-0-4)
Corerequisite: ENVS 534
Extensive field and local bay exercises applying principles from lecture.

ENVS 535. Ornithology (4-3-0)
Corequisite: ENVS 535L
An introduction to the biology of birds. Topics covered include anatomy, physiology, behavior, ecology, evolution, identification, and conservation. Students are expected to present an in-class lecture and lead one lab session.

ENVS 535L. Ornithology Laboratory (0-0-4)
Corerequisite: ENVS 535
Lab is field-oriented and includes several Friday afternoon field trips and two weekend trips lasting one or two days. Students are required to attend two Friday afternoon trips and at least one weekend trip. Lab focuses on the identification of birds using both ocular and acoustic characters.

ENVS 536. Terrestrial Ecology (4-3-0)
Corerequisite: ENVS 536L
A study of the structure and function of terrestrial systems focusing on the distinctive landscapes of the mid-Atlantic coastal region. Concepts will cover population, community and ecosystem ecology of plants and animals within these systems with attention given to the processes and functions that are distinct within and common among these systems.

ENVS 536L. Terrestrial Ecology Laboratory (0-0-4)
Corerequisite: ENVS 536
Field exercises in local terrestrial ecosystems applying principles from lecture.

ENVS 538. Limnology and Aquatic Biology (4-3-0)
Corerequisite: ENVS 538L
Interactions of physical, chemical and biological properties in natural and degraded freshwater ecosystems. Emphasis on application of field data gathering, processing and functional classification of organisms in aquatic communities.

ENVS 538L. Limnology and Aquatic Biology Lab (0-0-4)
Corerequisite: ENVS 538
Extensive field and laboratory exercises in local lakes and streams applying principles from lecture.

ENVS 540. Environmental Microbiology (4-3-0)
Corerequisite: ENVS 540L
The course investigates the role microorganisms play in terrestrial, aquatic, and marine ecosystems. The course explores: the dynamics of microbial populations and communities; normal microbiota and their interactions with other organisms; and environmental pathologies in which microorganisms are the primary agent (e.g., coliforms and other fecal contaminants in water, and adicophiles in mine tailings).

ENVS 540L. Environmental Microbiology (0-0-4)
Corerequisite: ENVS 540
Laboratory exercises include classic environmental testing procedures and novel new assessment procedures that have their roots in biochemistry and molecular biology.

ENVS 541. Urban Wildlife (3-3-0)
Prerequisites: At least one upper level course in ecology and/or zoology
An introductory course into wildlife management, focusing on wildlife in urban ecosystems. In addition to considering general wildlife issues such as nutrition, cover, water and disease, the course explores the urban climate and ecosystems, the types of species that typically inhabit North American urban ecosystem, human-wildlife interactions, and management strategies to benefit desired species and to control undesired species.

ENVS 545. Mammalogy (4-3-0)
Corerequisite: ENVS 545L
A study of the basic principles of mammalian biology. Students learn to recognize Virginia's mammals and gain an understanding of global mammalian diversity and systematics. The course provides a broad understanding of the natural history of mammalian groups and species, and investigates the roll of mammals in natural and urban systems.Conservation of this important taxonomic group is also discussed Students are expected to present an in-class lecture and lead one lab session.

ENVS 545L. Mammalogy Lab (0-0-4)
Corerequisite: ENVS 545
The lab is field oriented, and includes regular field trips to explore field biology and field identification.

ENVS 550. Global Change (3-3-0)
An examination of the evidence for and causes of global change. The impact of changes in the global cycles of C, N, P and H2O on ecosystem structure and function are examined. Atmosphere, terrestrial and aquatic biosphere changes are discussed along with their effect on plant and animal communities. Students present current scientific papers on various issues within this field.

ENVS 555. GIS & Spatial Analysis Techniques (4-3-0)
Corerequisite: ENVS 555L
In this course, computer information mapping, output design, spatial analyzes, GPS applications, and remote sensing techniques are discussed, explored (hands-on), and applied to local and regional problems.

ENVS 555L. GIS & Spatial Analysis Techniques Laboratory (0-0-4)
Corerequisite: ENVS 555
Lab includes the application of ArcGIS(ESRI Co.) software in combination with collecting field data with Trimble GPS to geospatially address environmental questions.

ENVS 590. Topical Seminars in Environmental Science (1-4 credits)
Prerequisites: These vary depending on the topic offered.
A variety of environmental science related topics not available in the regular curriculum are offered. These courses will be designed to fill a particular need not met by the regular courses or may be designed to use the talents of an environmental scientist who is not part of the faculty.

ENVS 595. Advanced Topics in Environmental Science (Credit varies)
Course topics are selected on the basis of faculty and student interests.

ENVS 599. Independent Study (1-3 Credits)
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for

approval prior to enrollment. See page 17 for specific instructions and procedures.

ENVS 689. Project Research for Non-Thesis (1-3 Credits, taken in increments)
The student may not proceed beyond the first credit without Project Research Committee approval of the project.

ENVS 699. Thesis Research (1-6 Credits, taken in increments)
The student may not proceed beyond the first credit without thesis committee approval of the proposal.

CHEMISTRY

CHEM 543. Atmospheric Chemistry (3-3-0)
This course presents an introduction to the chemistry of the troposphere and stratosphere. Emphasis is placed on the structure of the atmosphere, photochemical smog, global climate change and greenhouse gases, stratospheric ozone depletion, and particulate matter in the troposphere.

CHEM 545. Instrumental Methods in Chemistry (4-2-0)
Corerequisite: CHEM 545L
Application of chemical principles to instrumentation. Instruction in operation of a variety of modern instruments.

CHEM 545L. Instrumental Methods in Chemistry Laboratory (0-0-5)
Corerequisite: CHEM 545
Laboratory exercises include instruction in operation of a variety of modern instruments.

CHEM 555. Environmental Instrumental Analysis (4-2-0) *Prerequisite: CHEM 445 or 545;*
Corerequisite: CHEM 555L
Analytical methods for the analysis of environmentally significant substances in both trace and macroscopic abundances using modern instrumental methods. Analyses include both desirable and objectionable impurities in air and water, such as oxygen in water samples and heavy metal in water, and trace gases and other atmospheric impurities. Emphases in AA and GC-MS with other instruments used as needed.

CHEM 555L. Environmental Instrumental Analysis Laboratory (0-0-5)
Corerequisite: CHEM 555
Laboratory exercises include instruction in operation of instruments and analyses specific to the environmental field.

CHEM 565. Environmental Chemistry (3-3-0)
The study of the reactions, transport, effects, sources, and fates of chemical species in the atmospheric, aquatic and terrestrial environments. Students prepare a comprehensive paper and presentation.

CHEM 595. Advanced Topics in Chemistry (Credit varies)
Course topics are selected on the basis of faculty and student interests.

CHEM 599. Independent Study (1-3 Credits)
Qualified students may enrich their program through directed reading or independent research under faculty supervision and for University credit. Goals, prerequisites, stages, and grading are agreed upon in writing by the faculty member and the student and are submitted for approval prior to enrollment. See page 17 for specific instructions and procedures.

GRADUATE FACULTY RESEARCH AREAS

The following is a list of the graduate faculty members in M.S. in Environmental Science program and their areas of research.

TAREK ABDEL-FATTAH, PH.D.
Associate Professor of Chemistry
Environmental Remediation Technology, Catalysis and Nanotechnology for Aerospace Applications

ROBERT B. ATKINSON, PH.D.
Professor of Biology
Restoration of Damaged Ecosystems

MARK S. GRAY, PH.D.
Associate Professor of Biology
Microbiology, Genetics, DNA Replication, Biomedical Technologies

LINDA M. K. JOHNSON, PH.D.
Assistant Professor of Biology
Plant Population Biology, Horticulture

GEOFFREY C. KLEIN, PH.D.
Assistant Professor of Chemistry
Analytical Chemistry
Analysis of complex mixtures - organic matter, atmosphericparticulate matter, petroleum derived materials.

MICHAEL MEYER, PH.D.
Assistant Professor of Biology
Biodiversity, Biogeography, Aquatic Entomology

RICHARD E. SHERWIN, PH.D.
Assistant Professor of Biology
Applied Ecology, Conservation Biology

JESSICA S. THOMPSON, PH.D.
Assistant Professor of Biology
Fisheries Biology, Limnology, Aquatic Ecology

LISA S. WEBB, PH.D.
Assistant Professor of Biology
Genetics, Molecular Biology

GARY J. WHITING, PH.D.
Professor of Biology
Graduate Program Coordinator
GIS, Wetlands Ecology, Biogeochemistry

Reference Information

Family Rights and Privacy Act

The Family Educational Rights and Privacy Act of 1974 requires the University to maintain the confidentiality of student educational records and is intended to be a safeguard against unauthorized release of student educational records.

Board of Visitors

The Christopher Newport University Board of Visitors, appointed by the Governor of Virginia, directs the affairs of the University. The President of the University, appointed by the Board of Visitors, is the delegated authority over the administration and the courses of instruction.

University Academic Affairs Administration

The academic areas of the University are organized into the College of Liberal Arts and Sciences and the Joseph W. Luter, III College of Business and Leadership, each administered by a dean. Individual graduate faculty members are responsible to the college deans, the Associate Provost for Academic Services and the Provost in all matters pertaining to instruction. The graduate program is administered by the Associate Provost for Academic Services who also serves as the Director of Graduate Studies.

Graduate Faculty

The graduate faculty exercises faculty jurisdiction over graduate courses and programs and requirements for admission, continuation, and graduation from all graduate programs.

Family Educational Rights and Privacy Act (FERPA)

Listed below is the notification of the Family Educational Rights and Privacy Act of 1974 (FERPA). The University is required to inform enrolled students annually of their rights under the terms of FERPA. The act does not apply to students admitted to the University who have not officially enrolled.

NOTE: Access ***www.cnu.edu*** for the latest changes to the Family Educational Rights and Privacy Act of 1974 (FERPA)

A. Policy Intent

1. The University student record policy is intended to conform with all state and federal statutes dealing with access to information held by an educational institution on present and former students.
2. The CNU student record policy is formulated to protect the privacy of student information that is maintained and yet provide access to student records for those having a legitimate educational interest in viewing such records. Regulations and procedures to ensure adequate protection of the student are provided in this policy.

B. Student Rights under FERPA:

1. Enrolled students have the right to inspect their records within 45 days of the request for inspection and are entitled to an explanation of any information therein. "Records" refers to those files and their contents that are maintained by official units of the University. Generally, students have the right to review any official record that the University maintains on that student. When access is permitted, documents will be examined only under conditions that will prevent unauthorized removal, alteration, or mutilation. Students must submit to the Office of the Registrar written requests that identify the record(s) they wish to inspect. A University official will make arrangements for access and notify the student of the time and place where the record(s) may be inspected. If the University official to whom the request was submitted does not maintain the requested record(s), that official shall advise the student of the correct official to whom the request should be addressed.
2. Information to which the student does not have access is limited to the following:
    a. Confidential letters of recommendation placed in the student's files before January 1, 1975, and those letters for which student has signed a waiver of his or her right of access. Letters of recommendation are removed from the Admissions files before the files are forwarded to the Registrar's Office.
    b. Parents' confidential financial statements.
    c. Personal files and records of members of faculty or administrative personnel which are in sole possession of the maker thereof.
    d. Education records, which contain information about more than one student; in such cases, CNU will allow the inquiring student access to the part of the record, which pertains only to the inquiring student.
    e. Records of the Admissions Office concerning students admitted but not yet enrolled at the University.
    f. Medical/psychological records used in connection with treatment of the student. A physician or psychologist of the student's choice may view such records.
    g. University Police Department records, when utilized for internal purposes by this office in its official capacities.
3. Documents submitted to the University by or for the student will not be returned to the student. Normally, academic records received from other institutions will not be sent to third parties external to the University, nor will copies of such documents be given to the student. The student should request such records from the originating institution.
4. Students have the right to request an amendment of the education record that the student believes is inaccurate or misleading. Should a student believe his or her record is incorrect, s/he should write the University official responsible for the record, clearly identify the part of the record s/he wants changed, and specify the information s/he feels is inaccurate or misleading. The official will respond within a reasonable period concerning his or her action. Should the student not be satisfied, a hearing may be requested of the University Registrar.

5. Students have the right to consent to disclosures of personally identifiable information contained in the student's education record, except to the extent that FERPA authorizes disclosure without consent (see C3 below).
6. Students have the right to file a complaint with the US Department of Education concerning alleged failures by CNU to comply with the requirements of FERPA. The name and address of the office that administers FERPA is:

   Family Policy Compliance Office
   US Department of Education
   600 Independence Avenue, SW
   Washington, DC 20202-4605

C. Access to Student Records by Others

1. Disclosure of General Directory Information: Certain information may be released by the University without prior consent of the student if considered appropriate by designated school officials. Such information is defined as the following:
   a. Student's name, address, telephone number (permanent and local).
   b. Date of birth.
   c. Dates of attendance at the University, field of concentration, degrees, honors and awards.
   d. Enrollment status - full-time or part-time
   e. Height and weight of members of athletic teams.
   f. Participation in officially recognized activities.
2. Directory information will not be released for commercial purposes by administrative offices of the University under any circumstances. **Students may request that directory information not be released by written request to the Registrar's office. All other student information will be released only upon written request of the student**, excepting those instances cited below.
3. Disclosure to members of the University community:
   a. "School Official" is defined as a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including University law enforcement personnel and health staff); a person or company with whom the University has contracted (such as attorney, auditor or collection agent); or a person serving on the Board of Visitors.
   b. A school official must have a legitimate educational interest in order to review an education record. A legitimate educational interest is the demonstrated 'need to know' and is further defined in the following manner: the information requested must be within the context of the responsibilities assigned to the School Official; the information sought must be used within the context of official University business and not for purposes extraneous to the officials area of responsibility or the University; information requested must be relevant and necessary to the accomplishment of some task or to making some determination within the scope of University employment. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.
   c. Information requested by student organizations of any kind will be provided only when authorized by the Dean of Students.
4. Disclosure to parents and organizations providing financial support to a student: It is the University's policy to release the academic transcript to parents and/or organizations only upon the student's written request or authorization. Parents may also provide documentation showing the student as a financial dependent according to the definition provided in section 152 of the IRS Code. Otherwise, the academic transcript will be sent only to the student, or at the student's written instruction, a policy consistent with the University's interpretation of FERPA.
5. Disclosure to other educational agencies and organizations: Information may be released to another institution of learning, research organization, or accrediting body for legitimate educational reasons, provided that any data shall be protected in a manner that will not permit the personal identification of the student by a third party.
6. Disclosure to local, state, and federal governmental agencies: Government agencies are permitted access to student records only when auditing, enforcing, and/or evaluating sponsored programs. In such instances, such data may not be given to a third party and will be destroyed when no longer needed for audit, enforcement, and/or evaluative purposes.

Board of Visitors

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North, Virginia

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Paul S. Trible, Jr.
President

Cynthia R. Perry
Chief of Staff

Mark W. Padilla, Ph.D.
Provost

Kelly B. Cartwright, Ph.D.
Associate Provost for
Academic Services,
Director of Graduate Studies

Tracey T. Schwarze, Ph.D.
Vice Provost

Douglas K. Gordon, Ph.D.
Dean, College of Liberal
Arts and Sciences

David L. Cleeton, Ph.D.
Dean, Joseph W. Luter, III
College of
Business and Leadership

Michelle L. Moody, J.D.
Director of EEO and
Faculty Recruitment

Lyn S. Sawyer, M.Ed.
Associate Director of
Admissions and Records,
Office of Graduate Studies

Graduate Faculty

This list reflects the expected status of members of the graduate faculty for 2008-2009 at the time the catalog went to press.

Ex officio Members

Paul S. Trible, Jr.
President of the University.
B.A., Hampden-Sydney College; J.D., Washington and Lee University

Mark W. Padilla
Provost. Professor of Modern Languages & Literature.
B.A., University of California at Santa Cruz; M.A., Ph.D. Princeton University

Kelly B. Cartwright, Ph.D.
Associate Provost for Academic Services, Director of Graduate Studies, Associate Professor of Psychology.
B.A., University of Georgia; M.S., Ph.D., University of Tennessee at Knoxville

Douglas K. Gordon
Dean of the College of Liberal Arts and Sciences. Professor of English.
B.A., University of Virginia; M.A., Ph.D., University of Tennessee at Knoxville

David L. Cleeton
Dean of the Joseph W. Luter, III College of Business. and Leadership, Professor of Economics.
B.A., M.A., University of Missouri; Ph.D., Washington University at St. Louis

Mary K. Sellen
University Librarian. Associate Professor of Library Science.
B.Mus., Sherwin Music School; M.Mus., M.L.S., University of Illinois

Lisa Duncan Raines
University Registrar.
B.S., M.S., Virginia Polytechnic Institute and State University

Accounting, Economics and Finance

Ronnie Cohen
Professor of Accounting.
B.A., Kirkland College; J.D., LL.M., The College of William and Mary

Michelle A. Vachris
Professor of Economics.
B.A., The College of William and Mary; M.A., Ph.D., George Mason University

George K. Zestos
Professor of Economics and Finance.
B.A., Saginaw Valley State University; M.A., Michigan State University; Ph.D. Indiana University

Biology, Chemistry and Environmental Science

Tarek M. Abdel-Fattah
Associate Professor of Chemistry.
B.Sc., M.Sc., Alexandria University; Ph.D., Northeastern University

Robert B. Atkinson
Professor of Biology & Environmental Science.
B.S., M.S., James Madison University; Ph.D., Virginia Polytechnic Institute and State University

Mark S. Gray
Associate Professor of Biology.
B.S., Villanova University, Ph.D. Thomas Jefferson University.

Linda M. K. Johnson
Assistant Professor of Biology.
B.A., B.A.H., Villanova University; M.S., University of Virginia

Geoffrey C. Klein
Assistant Professor of Chemistry.
B.S., College of William and Mary; Ph.D., Florida State University.

Michael D. Meyer
Assistant Professor of Biology.
B.S., University of California, Davis; M.S., Ph.D., Purdue University

Richard E. Sherwin
Assistant Professor of Biology.
B.S., M.S., Brigham Young University; Ph.D. University of New Mexico

Jessica S. Thompson
Assistant Professor of Biology.
B.A., Bard College; Ph.D., North Carolina State University

Lisa S. Webb
Assistant Professor of Biology.
B.A. Maryville College; M.Ed. University of Georgia; Ph.D., University of Tennessee

Gary J. Whiting
Professor of Biology and Environmental Science.
B.S., University of Cincinnati; Ph.D., University of South Carolina

English

Jean S. Filetti
Associate Professor of English.
B.S., Clarion University of Pennsylvania; M.A., Ph.D., University of Toledo

Kara K. Keeling
Associate Professor of English.
B.A., Carleton University; M.A., Purdue University; Ph.D., Indiana University

Roark R. Mulligan
Associate Professor of English.
B.A., University of California at Berkeley; M.S., M.A., Ph.D. University of Oregon

Jay S. Paul
Professor of English.
B.A., Hartwick College; M.A., Ph.D., Michigan State University
Scott T. Pollard
Associate Professor of English.
B.A., Santa Clara University; M.A., Ph.D., University of California at Irvine
Roberta K. Rosenberg
Professor of English.
B.A., Queens College of the City University of New York, Ph.D., University of North Carolina at Chapel Hill
Tracey T. Schwarze
Vice Provost, Associate Professor of English.
B.A., University of Virginia; M.A., University of Dayton; Ph.D., University of California
Peter M. Snow
Assistant Professor of English.
B.A., Middlebury College; M.A., University of New Mexico; Ph.D., University of California, Los Angeles.
Marsha M. Sprague
Professor of English.
B.A., Wellesley College; M.Ed., Pennsylvania State University; Ed.D. University of Miami
Rebecca S. Wheeler
Associate Professor of English.
B.A., University of Virginia; M.S. Georgetown University, Ph.D. University of Chicago
Mary Wright
Assistant Professor of English.
B.A., Virginia Wesleyan College; M.A., Old Dominion University; Ph.D., Florida State University

Fine Art and and Art History

Betty L. Anglin
Lecturer.
B.A., The College of William and Mary
Margaret C. Bowen
Lecturer.
B.A., Marshall University; M.A., University of Maryland

Government and Public Affairs

Nathan E. Busch
Associate Professor of Government and Public Affairs.
B.A., University of Toronto (Ontario); M.A. Michigan State University; Ph.D., University of Toronto (Ontario).
Peter M. Carlson
Professor of Government and Public Affairs.
B.A., Willamette University; M.S.Ed., Western Oregon University; D.P.A., University of Southern California
Gary S. Green
Associate Professor of Government and Public Affairs.
B.A., University of California at Irvine; M.A., Rutgers University School of Criminal Justice; Ph.D., University of Pennsylvania
Harry Greenlee
Associate Professor of Government and Public Affairs.
B.S., M.A., Hampton Institute; J.D., Ohio State University
Brennan Kraxberger
Assistant Professor of Government and Public Affairs.
B.A., University of Missouri; M.A., Ph.D., University of Iowa

History

William F. Connell
Assistant Professor of History.
B.A., M.A., University of South Carolina; Ph.D., Tulane University
J. Eric Duskin
Associate Professor of History.
B.A., Wesleyan University; M.A., Ph.D., University of Michigan at Ann Arbor
Phillip F. Hamilton
Associate Professor of History.
B.A. Gettysburg College; M.A. George Washington University; Ph.D. Washington University
Mario D. Mazzarella
Professor of History.
A.B., Providence College; M.A. University of Rhode Island; Ph.D., American University
Laura M. Puaca
Assistant Professor of History.
B.A. Rutgers University; M.A., Ph.D., University of North Carolina at Chapel Hill
Anthony R. Santoro
President Emeritus. Distinguished Professor of History.
A.B., College of the Holy Cross; M.A., University of California; Ph.D., Rutgers University
Nigel A. Sellars
Assistant Professor of History.
B.A., B.A., M.A., Ph.D., University of Oklahoma
Shumet Sishagne
Associate Professor of History.
B.A., Haile Selassie University; M.A., Addis Ababa University; Ph.D., University of Illinois
Xiaoqun Xu
Associate Professor of History.
B.A, Shanghai Teachers College; M.A., East China Normal University; M.A. University of Akron; Ph.D., Columbia University

Leadership and American Studies

Robert E. Colvin
Associate Professor of Leadership & American Studies.
B.S., M.B.A., Radford University, Ph.D., Virginia Commonwealth University
Elizabeth Kaufer Busch
Assistant Professor of Leadership & American Studies.
B.A., Emory University; Ph.D., Michigan State University

Mathematics

John J. Avioli
Professor of Mathematics and Computer Science.
B.S., West Chester University; M.S., Ph.D., University of Delaware

Bobbye H. Bartels
Assistant Dean for Liberal Learning,
Professor of Mathematics.
B.A., Lawrence University; A.M., Ph.D., University of Illinois at Urbana-Champaign
Martin W. Bartelt
Professor of Mathematics.
B.A., Hofstra University; M.A., Ph.D., University of Wisconsin
Brian D. Bradie
Professor of Mathematics.
B.S., M.S., Ph.D., Clarkson University
Hongwei Chen
Professor of Mathematics.
B.S., Hunan Normal University, PRC; M.S., Huazhong University of Science and Technology, PRC; Ph.D., North Carolina State University
Parviz K. Khalili
Professor of Mathematics.
B.S., Arya Mehr Sharif University (Iran); M.S., Michigan State University; Ph.D., University of Michigan
Stavroula E. Kostaki-Gailey
Professor of Mathematics.
A.A., Warren Wilson College; B. A., University of North Carolina at Greensboro; M.A., Western Carolina University; Ed.D., University of North Carolina at Greensboro
James E. Martin
Professor of Mathematics.
B.S., University of Pittsburgh; M.S. (Engineering), M.S. (Applied Mathematics), Ph.D., Brown University
Jean M. Stevens
Lecturer.
B.S., Longwood College; M.S., Old Dominion University

Modern and Classical Languages and Literatures

Francisca A. Cronk
Lecturer.
B.A., Christopher Newport University; M.A., University of Salamanca, Spain
Benjamin R. Fraser
Assistant Professor of Spanish.
B.A., University of Virginia; M.A., Ph.D., University of Arizona
Georgeta M. Georgescu
Assistant Professor of French.
M.A., University of Bucharest; M.A., University of Houston; Ph.D., Rice University
Michelle L. Grau
Lecturer.
B.S., Indiana University of Pennsylvania; M.A., Millersville University of Pennsylvania
Elaine M. Miller
Assistant Professor of Spanish.
B.A., Juniata College; M.A., Pennsylvania State University, Ph.D., University of Maryland
Susan S. St. Onge
Professor of French.
B.A., Vanderbilt University; M.A., University of Wisconsin; Ph.D., Vanderbilt University
Danielle L. Velardi
Associate Professor of Spanish.
B.A. Wheeling College; M.A. Middlebury College; Ph.D. Catholic University of America

Music

Clyde W. Brockett, Jr.
Emeritus Professor of Music.
A.B. Th College of William and Mary; M.A., Ph.D. Columbia University
Brantley T. Douglas III
Associate Professor of Music.
B.Mus., University of Wisconsin; M.M.E., S.M.E. University of Michigan
Lauren P. Fowler
Associate Professor of Music.
B.M.E., Concordia College; M.M., University of Arizona-Tucson; D.M.A., University of Northern Colorado
James R. Hines
Professor of Music.
B.A., Old Dominion University, M.Mus., Virginia Commonwealth University; Ph.D., University of North Carolina
Rachel J. Holland
Assistant Professor of Music.
B.M., Butler College; M.Mus., D. Mus., Indiana University
Keith A. Koster
Assistant Professor of Music.
B.S., Quincy College; M.M. Indiana University; Ph.D., University of Missouri
Mark U. Reimer
Professor of Music.
B.M.E., Drake University; M.Mus., University of Cincinnati; D. Mus., Indiana University
Joseph P. White
Assistant Professor of Music.
B.A., University of Rochester-Eastman School of Music; M.M., Indiana University; D.M.A., University of Washington

Physics, Computer Science and Engineering

Edward J. Brash
Associate Professor of Physics, Computer Science & Engineering.
B.Sc., M.Sc., Queen's University; Ph.D., Simon Fraser University
S. Raj Chaudhury
Associate Professor of Physics, Computer Science & Engineering.
B.A., Vassar College; M.S. , Ph.D., University of California, Los Angeles

David C. Doughty, Jr.
Professor of Physics, Computer Science & Engineering.
B.A., Rutgers University; Ph.D., University of Pennsylvania
Roberto A. Flores
Assistant Professor of Physics, Computer Science & Engineering.
B.S.E., Institutio Tecnologico y de Estudio Superior de Monterrey (Mexico); M.Sc. , Ph.D., University of Calgary
David E. Game
Associate Professor of Physics, Computer Science & Engineering.
B.S., Massachusetts Institute of Technology; M.S., The College of William and Mary; Ph.D., Old Dominion University
Melia J. Hellman
Lecturer.
B.S., Christopher Newport University, M.A., George Washington University
Bilie Hetrick
Lecturer.
B.S., Radford University, M.S., George Mason University
David L. Hibler
Professor of Physics, Computer Science & Engineering.
B.S., Ph.D., University of Texas at Austin; M.S., Ph.D., University of South Carolina
Peter A. Knipp
Associate Professor of Physics, Computer Science & Engineering.
A.B., Princeton University; M.S., Ph.D., University of Chicago.
Lynn Lambert
Associate Professor of Physics, Computer Science & Engineering.
B.A., Wellesley College; M.S., Shippensburg University of Pennsylvania; Ph.D., University of Delaware
Gihan I. Mandour
Assistant Professor of Computer Engineering.
B.S., M.S., Alexandria University; M.S., Ph.D. Michigan State University
Anton Riedl
Assistant Professor of Computer Science and Engineering.
M.S.E.E., Purdue University; Dipl.-Ing., Ph.D. Munich University of Technology
Raouf L. Selim
Associate Professor of Physics, Computer Science & Engineering.
B.S.E.E., Cairo University; B.S. Ain Shams University, Cairo; M.A., Ph.D., Temple University
Antonio C. Siochi
Associate Professor of Physics, Computer Science & Engineering.
B.S., Anteneo de Manila University; M.S., Ph.D., Virginia Polytechnic Institute and State University
Dali Wang
Associate Professor of Physics, Computer Science and Engineering.
B.S., Huazhong University of Science and Technology; M.S., North China Institute of Electrical and Power; Ph.D., Florida Atlantic University
Ming Zhang
Professor of Physics, Computer Science and Engineering.
B.S., M.S., Ph.D., East China Normal University

Philosophy and Religious Studies

John A. Hoaglund
Professor of Philosophy.
Ph.D., Free University of Berlin

Psychology

Thomas D. Berry
Associate Professor of Psychology.
B.S., University of Florida; M.S., Ph.D., Virginia Polytechnic Institute and State University
Kelly B. Cartwright
Associate Provost for Academic Services, Director of Graduate Studies, Associate Professor of Psychology.
B.S., Virginia Polytechnic Institute and State University; M.A., Ph.D., University of Arkansas
Diane Catanzaro
Associate Professor of Psychology.
B.A., Dickinson College; M.A., Fairleigh Dickinson University; Ph.D., Old Dominion University
Jeffrey A. Gibbons
Associate Professor of Psychology.
B.A., Western Michigan University; M.S., Ph.D., Kansas State University
Shelia P. Greenlee
Professor of Psychology.
B.A., Norfolk State University; M.A., Ph.D., Ohio State University
Sherman Lee
Assistant Professor of Psychology.
B.A., University of Hawaii; M.S. Emporia State University; Ph.D., University of Kentucky
Diane Malaspina
Assistant Professor of Psychology.
B.S., Virginia Polytechnic Institute and State University; M.S.Ed., Old Dominion University; Ph.D., University of Virginia
Timothy R. Marshall
Associate Professor of Psychology.
B.S., University of Idaho; M.S., Ph.D., Virginia Polytechnic Institute and State University
Andrew J. Velkey, II
Assistant Professor of Psychology.
B.S., Millsaps College; M.A., Ph.D., University of Montana

Sociology, Social Work & Anthropology

Eduardo Perez
Assistant Professor of Sociology & Anthropology.
B.A., California State University; M.A., Ph.D., University of Nebraska
Linda M. Waldron
Assistant Professor of Sociology & Anthropology.
B.A., Bloomsburg University; M.A., Ph.D., Syracuse University

Teaching and Learning

Gilbert W. Crippen
Lecturer.
B.S., M.S., East Carolina University

Flora J. Donatto
Lecturer.
B.A., M.A., Louisiana Tech University

Deborah O. Farina
Assistant Professor of Professional Faculty.
B.S., The American University; M.A., Old Dominion University; M.Ed., The College of William and Mary

Duanne M. Hawkins
Lecturer.
B.A., Mary Washington College, M.Ed., The College of William and Mary; Ed.D., University of Virginia

Alice M. Hammel
Lecturer.
B.M.E., Shenandoah Conservatory of Music, M.M.E., Florida State University, D.M.A. Shenandoah University

Phyllis T. Henry
Lecturer.
B.A., University of North Carolina, Chapel Hill; M.Ed., University of Virginia

Wanda B. Mallette
Lecturer.
B.A., M.A., Hampton Institute (University)

Linda T. Morgan
Senior Lecturer.
B.S., Longwood College; M.Ed., Texas A&M University; D.Ed., Virginia Polytechnic Institute and State University

Kenneth H. Noland
*Lecture*r.
B.A., Harding College; M.E., University of Arkansas

Judith L. Pantelides
Lecturer.
B.S., M.S., C.A.S., Old Dominion University, Ed.D., Virginia Polytechnic Institute and State University

Donna S. Savage
Lecturer.
B.A., M.A.Ed., The College of William and Mary; Ed.S.; George Washington University

Anne C. Tyler
Lecturer.
*B.S., James Madison University; M.Ed.,*Virginia Polytechnic Institute and State University

Regina J. Waters
Lecturer.
B.S., Old Dominion University; M.Ed., The College of William & Mary

Richard N. Weber
Lecturer.
A.B., Cornell University; M.S., Elmira College; Ed.D., The College of William and Mary

Teresa H. Wheeler
Lecturer.
B.A., University of South Carolina, M.S., Old Dominion University

Lois R. Winter
Lecturer.
B.S., The American University; M.A., Old Dominion University; M.Ed., The College of William & Mary

Theater and Dance

Steven Breese
Associate Professor of Theater Arts.
B.A., Baldwin Wallace College; M.F.A., California Institute of the Arts

Denise R. Gillman
Associate Professor of Theater Arts.
B.F.A., West Virginia University; M.F.A., California Institute of the Arts

George J. Hillow, III
Associate Professor of Theater Arts.
A.B., Duke University; M.A. Memphis State University; M.F.A., Virginia Commonwealth University

Tanya E. Sweet
Associate Professor of Theater Arts.
B.A., Beloit College; M.F.A., University of Illinois

Teaching Clinical Faculty

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University Police . . . . . .(757) 594-7053
Veterans Affairs Office . . . . . .(757) 594-7274

Graduate Program Coordinators:

MAT

Dr. Marsha Sprague . . . . . .msprague@cnu.edu
124 Ratcliffe Hall
(757) 594-7388

M.S. in Applied Physics & Computer Science

Dr. Antonio Siochi . . . . . .siochi@pcs.cnu.edu
131 Gosnold Hall
(757) 594-7569

M.S. in Environmental Science

Dr. Gary Whiting . . . . . .gwhiting@cnu.edu
238 Science Building
(757) 594-7613