

Clarion University of Pennsylvania

**Clarion, Pennsylvania 16214-1232
814-393-2000**

www.clarion.edu

**Graduate Catalog
2001-2003**

Accredited by:

- AACSB-The International Association for Management Education
Master of Business Administration Program
Phone: 314-872-8481
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- American Bar Association
Legal Business Studies
Phone: 800-285-2221
Address: 750 N. Lakeshore Drive, Chicago, IL 60611
- American Library Association
Master of Science in Library Science Program
Phone: 800-545-2433
Address: 50 East Huron Street, Chicago, IL 60611
- Association for Childhood Education International
Phone: 800-423-3563
Address: 17904 Georgia Avenue, Suite 215, Olney, MD 20832
- Association of Small Business Development Centers
Phone: 703-448-6124
Address: 1300 Chain Bridge Road, Suite 201, McLean, VA 22101-3967
- Council for Exceptional Children
Phone: 703-620-3660
Address: 1920 Association Drive, Reston, VA 22091-1589
- Council for Occupational Therapy Education of the American Occupational Therapy Association
Phone: 301-652-2682
Address: PO Box 32110, 4720 Montgomery Lane, Bethesda, MD 20824-1220
- Council on Academic Accreditation of the American Speech-Language-Hearing Association
Master of Science in Communication Sciences and Disorders Program
Phone: 800-638-8255
Address: 10801 Rockville Pike, Rockville, MD 20852
- International Association of Counseling Services Inc.
Department of Counseling Services
Phone: 703-823-9840
Address: 101 South Whiting Street, Suite 211, Alexandria, VA 22304
- International Reading Association
Phone: 302-731-1600
Address: PO Box 8139, 800 Barksdale Road, Newark, DE 19714-8139
- Middle States Association of Colleges and Schools
Phone: 215-662-5606
Address: 3624 Market Street, Philadelphia, PA 19104-2680
- National Association for the Education of Young Children
Earl R. Siler Children's Learning Complex
Phone: 800-424-2460
Address: 1509 16th Street, NW, Washington, DC 20036
- National Association of Schools of Music
Phone: 703-437-0700
Address: 11250 Roger Bacon Drive, Suite 21, Reston, VA 20190
- National Council for Accreditation of Teacher Education
Master of Education in Elementary Education Program
Master of Education in Reading Program
Reading Specialist Certification Program
Master of Science in Special Education Program
Phone: 202-466-7496
Address: 2010 Massachusetts Avenue, NW, Suite 500, Washington, DC 20036-1023

National Council for Social Studies
Phone: 202-966-7840
Address: 3501 Newark Street, NW, Washington, DC 20016-3167

National Council of Teachers of English
Phone: 800-369-6283
Address: 1111 Kenyon Road, Urbana, IL 61801-1096

National Council of Teachers of Mathematics
Phone: 800-235-7566
Address: 1906 Association Drive, Reston, VA 20191-1593

National Council on Economic Education
Phone: 800-338-1192
Address: 1140 Avenue of the Americas, New York, NY 10036

National League for Nursing
Master of Science in Nursing Program
Phone: 800-669-9656
Address: 61 Broadway, New York, NY 10006-4584

National Science Teachers Association
Phone: 703-243-7100
Address: 1840 Wilson Boulevard, Arlington, VA 22201-3000

Approvals by:

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Clarion University

Academic Calendar 2001-2002

(Subject to change without notice)

Fall Semester 2001

Registration for day and evening classes	Monday, August 27
Classes begin 8 a.m.	Monday, August 27
Labor Day Holiday	Monday, September 3
Midsemester break begins 10 p.m.	Thursday, September 27
Midsemester break ends 8 a.m.	Monday, October 1
Thanksgiving holiday begins 10 p.m.	Tuesday, November 20
Thanksgiving holiday ends 8 a.m.	Monday, November 26
Classes end 10 p.m.	Friday, December 7
Reading day	Saturday, December 8
Final examination period begins	Monday, December 10
Final examination period ends 10 p.m.	Friday, December 14
Semester ends 10 p.m.	Friday, December 14
Winter Commencement	Saturday, December 15
Semester grades due from faculty	Thursday, December 20

Spring Semester 2002

Registration for day and evening classes	Monday, January 14
Classes begin 8 a.m.	Monday, January 14
Martin Luther King Jr. birthday observed (no classes)	Monday, January 21
Winter holiday begins 10 p.m.	Friday, February 22
Winter holiday ends 8 a.m.	Wednesday, March 6
<i>Monday classes meet in place of Wednesday classes</i>	Wednesday, March 6
Spring vacation begins 10 p.m.	Thursday, March 28
Spring vacation ends 8 a.m.	Tuesday, April 2
Classes end 10 p.m.	Friday, May 3
Reading day	Saturday, May 4
Final examination period begins	Monday, May 6
Final examination period ends 10 p.m.	Friday, May 10
Semester ends 10 p.m.	Friday, May 10
Spring Commencement	Saturday, May 11
Semester grades due from faculty	Thursday, May 16

Summer Sessions - 2002

Session I: Pre-session	May 13-May 31
Session I: Regular session	June 3-July 5
Session II: Regular session	July 8-August 9

Fall Semester 2002

Registration for day and evening classes	Monday, August 26
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Clarion University Academic Calendar 2002-2003

(Subject to change without notice)

Fall Semester 2002

Registration for day and evening classes	Monday, August 26
Classes begin 8 a.m.	Monday, August 26
Labor Day Holiday	Monday, September 2
Midsemester break begins 10 p.m.	Thursday, October 10
Midsemester break ends 8 a.m.	Monday, October 14
Thanksgiving holiday begins 10 p.m.	Tuesday, November 26
Thanksgiving holiday ends 8 a.m.	Monday, December 2
Classes end 10 p.m.	Friday, December 6
Final examination period begins	Monday, December 9
Final examination period ends 10 p.m.	Friday, December 13
Semester ends 10 p.m.	Friday, December 13
Winter Commencement	Saturday, December 14
Semester grades due from faculty	Thursday, December 19

Spring Semester 2003

Martin Luther King Jr. birthday observed	Monday, January 20
Registration for day and evening classes	Tuesday, January 21
Classes begin 8 a.m.	Tuesday, January 21
Winter holiday begins 10 p.m.	Friday, February 28
Winter holiday ends 8 a.m.	Wednesday, March 12
<i>Monday classes meet in place of Wednesday classes</i>	Wednesday, March 12
Spring vacation begins 10 p.m.	Thursday, April 17
Spring vacation ends 8 a.m.	Tuesday, April 22
Classes end 10 p.m.	Friday, May 9
Final examination period begins	Monday, May 12
Final examination period ends 10 p.m.	Friday, May 16
Semester ends 10 p.m.	Friday, May 16
Spring Commencement	Saturday, May 17
Semester grades due from faculty	Thursday, May 22

Summer Sessions - 2003

Session I: Pre-session	May 19-June 6
Session I: Regular session	June 9-July 11
Session II: Regular session	July 14-August 15

Fall Semester 2003

Registration for day and evening classes	Monday, August 25
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GENERAL INFORMATION

General Information

Core Values of Clarion University of Pennsylvania

1. We believe in the learning potential of all our students who are willing to invest hard work in the pursuit of their education.
2. We are committed as a faculty, staff, and administration to creating opportunities for all our students to achieve success beyond their own expectations within an environment that cultivates tolerance, civility, and respect.
3. We value the individual relationship between student and faculty as central to the learning process and recognize the contributions of staff in providing the necessary support for that endeavor.
4. We believe that we exist to serve the needs of all people of the Commonwealth of Pennsylvania and to advance higher education as a public good.
5. We are committed to advancing our relationships with the larger communities of which we are a part.

*Approved by the Council of Trustees,
Clarion University, January 18, 2001*

Vision of Clarion University of Pennsylvania

Clarion University of Pennsylvania will serve the Commonwealth ever more effectively as a high quality, dynamic, technologically advanced, publicly owned university dedicated to advancing knowledge with a focus on learning and collaborating with educational and business partners. Clarion University will be accessible to students from diverse backgrounds, accountable to its many constituencies, and actively engaged in the continuous improvement of its programs, services, faculty,

and staff. Above all, Clarion University will prepare students to succeed in the global economy, to contribute to the economic and social well being of the Commonwealth and the nation, to play constructive roles in their communities, and to lead productive and meaningful lives, including a passion for continuous learning.

*Approved by the Council of Trustees,
Clarion University, January 18, 2001*

Mission of Clarion University of Pennsylvania

Clarion University seeks to excel in all that it does and challenges students to develop their talents, extend their intellectual capacities and interests, expand their creative abilities, and to develop a respect and enthusiasm for learning that will extend throughout their lives. The university acknowledges that learning requires a partnership demanding hard work by students, faculty, and staff, and that learning extends beyond the classroom. The university community is dedicated to helping students see in themselves what they may become by creating opportunities to develop the knowledge, skill, and attitudes necessary for both enlightened citizenship and successful participation in a technologically advanced, global society.

Clarion University is primarily an undergraduate institution with selected graduate programs. Instructional programs—delivered on campus, throughout the state, and beyond via appropriate distance education technologies—range from associate degrees and certificate programs to

baccalaureate degree programs in the arts and sciences and professional fields, graduate programs in selected fields, and continuing education. University programs are administered through campuses in Clarion and Oil City.

Clarion University seeks to admit, retain, and graduate students who are qualified and motivated, and to recruit, retain, and support highly qualified and dedicated faculty and staff. The university is a learning community that seeks diversity in its faculty, staff, and student body and values this diversity as providing richness in the learning process. This community strives to treat its members with civility and respect. Students, faculty, and staff value learning, contribute to the development of new knowledge through scholarly activities, and participate in community and public service responsive to the needs of society.

*Approved by the Council of Trustees,
Clarion University, January 18, 2001*

Graduate Studies Mission

Clarion University recognizes the role that a high quality graduate program plays in maintaining excellence in the institution. The opportunity to work with graduate students, the challenge to remain at the forefront in the discipline, and the stimulus resulting from research all contribute to the recruitment, development, and retention of a concerned, productive faculty. Clarion University shall maintain a graduate program that supports the goals of the university.

Non-Discrimination Statement

It is the policy of Clarion University of Pennsylvania that there shall be equal opportunity in all of its educational programs, services, and benefits, and there shall be no discrimination with regard to a student's or prospective student's race, color, religion, sex, national origin, disability, age, sexual orientation/affection, veteran status, or other classifications that are protected under Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and other pertinent state and federal laws and regulations. Direct equal opportunity inquiries to: Assistant to the President for Social Equity, 207 Carrier Administration Building, Clarion, PA 16214-1232, 814-393-2000; and direct inquiries regard-

ing services or facilities accessibility to 504/ADA Coordinator (Compliance Specialist) 207 Carrier Administration Building, Clarion, PA 16214-1232, 814-393-2000; (or to the Director of the Office for Civil Rights, Department of Education, 330 Independence Avenue, SW, Washington, DC 20201).

Clarion Campus

Now well into its second century of service to the people of Pennsylvania, Clarion University has successfully been Carrier Seminary, a state normal school, a state teachers' college, a state college, and beginning July 1, 1983, a university in the State System of Higher Education. Each phase of this development has marked a stage in the continuing effort of the institution to respond to the educational needs and aspirations of increasing numbers of students.

Today, Clarion University is a multi-purpose institution with an enrollment of approximately 6,000 students offering associate's degrees in five areas; more than 70 baccalaureate programs leading to degrees in the arts, fine arts, nursing, and sciences; and 12 graduate programs leading to master's degrees in the arts, business administration, education, library science, nursing, and sciences.

The main campus of the university contains 99 acres and 43 buildings, the majority of which were constructed within the past 20 years. Beyond the main campus, situated at the west end of the town of Clarion, is a 27-acre





athletic complex with football, baseball, and practice fields and Memorial Stadium, seating 5,000 spectators. The university is within the Borough of Clarion some two miles north of Interstate 80 at Exits 9 and 10 and is approximately 2.5 hours' driving time from the urban centers of Pittsburgh, Erie, and Youngstown. High on the Allegheny Plateau overlooking the Clarion River, the rural setting is in the midst of one of Pennsylvania's most scenic resort areas. The rolling wooded countryside, interspersed with small farms, affords some of the most enjoyable outdoor activities to be found anywhere in Northwestern Pennsylvania, and the Clarion River provides an excellent setting for summer boating, swimming, and aquatic sports.

Among facilities supporting programs at Clarion University are the Carlson and Suhr Libraries; the George R. Lewis Center for Computing Services operating Digital Equipment Corporation computers and associated equipment; several microcomputer laboratories; a planetarium; modern science laboratories having excellent instrumentation; well-equipped support areas for special education and speech pathology and audiology; a modern business administration building; technologically equipped classrooms for library science; radio and television studios and experimental audio-visual facilities in the Department of Communication; and a writing center, tutorial services, and a counseling center to assist students who can benefit from these services.

Venango Campus

Venango Campus of Clarion University, established in 1961, was the first branch campus in the Pennsylvania State System of Higher Education. Located in Oil City, Venango Campus is scenically situated on 62 acres surrounded by heavily wooded foothills overlooking the Allegheny River.

Venango Campus is appropriate for students who prefer the atmosphere of a small campus with its capacity for providing individual attention for each student and for permitting and encouraging varied student initiated activities.

Venango Campus offers programs for both part-time and full-time students. Students may study for one of six associate's degrees in arts and sciences, business administration, legal business studies, nursing, rehabilitative services, and certified occupational therapy assistant.

The School of Nursing, which is located at the Venango Campus, also offers a Bachelor of Science in Nursing program at the Oil City Campus and the Pittsburgh site, located at the West Penn Hospital School of Nursing in Bloomfield. A Master of Science in Nursing degree with a family nurse practitioner emphasis is offered jointly by Clarion University and Slippery Rock University Nursing Departments. Courses for this master's program are offered at sites in Clarion, Oil City, Pittsburgh, Slippery Rock, and Wexford.

GRADUATE STUDY AT CLARION UNIVERSITY

Graduate Study at
Clarion University

Graduate Study at Clarion University

Eligibility for Admission

Individuals seeking regular full admission to a graduate program must meet the minimum admission requirements for the Division of Graduate Studies and any additional requirements of the program. To meet the minimum requirements for admission to the Division of Graduate Studies an applicant must provide evidence of:

- A bachelor's degree or its equivalent from an acceptably accredited college or university. Individuals who have not yet completed the baccalaureate degree may submit transcripts for course work completed, along with application materials. Final transcripts noting the completion of the degree will be required.
- A minimum quality-point average of 2.75/4.00 at the undergraduate level. Some programs require a higher undergraduate quality-point average. Please review the program admission requirements listed elsewhere in this catalog.

Individuals not meeting the quality-point average requirement of a graduate program may be eligible for regular admission when the lower quality-point average is evaluated in terms of supplementary factors, including letters of reference, examination scores on such instruments as the Graduate Record Examination, Graduate Management Admission Test, and/or the Miller Analogies Test, or achievement in graduate-level course work.

Information regarding the Miller Analogies Test, the Graduate Record Examination (GRE), and the Graduate Management Admission Test (GMAT) may be obtained from the Graduate Studies office.

Applicants should refer to the admission requirements of specific programs as listed in this bulletin.

Categories of Admission

Admitted applicants will be classified in one of the following categories of admission.

Regular Full Admission

Individuals meeting all of the admission requirements for a graduate program shall be granted regular full-admission status. Only individuals with regular full-admission status are eligible for graduate assistantships. Individuals must achieve regular full-admission status before they graduate. A student may apply and be admitted to a graduate program during his/her last year of undergraduate study. This admission, however, is contingent upon the student providing the Graduate Studies office an official final undergraduate transcript that indicates the baccalaureate degree has been awarded.

Provisional Admission

Individuals not meeting all of the admission requirements for a graduate program may be admitted on a provisional basis. In such cases, admission will be based upon specific conditions that the student must meet in order to be reclassified as regular full admission. Individuals admitted on a provisional basis are not eligible for graduate assistantships. Individuals admitted on a provisional basis are not guaranteed regular full-admission status.

Courtesy/Transient Admission

A graduate student from another institution may enroll for graduate courses at Clarion University on a courtesy basis if he or she intends to transfer the credit for the course to another institution. Information about courtesy admission may be obtained from the Division of Graduate Studies.

Non-Degree Status Admission

Occasionally individuals will want to engage in graduate study without formally entering a graduate program. Such individuals should apply for a non-degree admission status at the time of application. All admission requirements must be met. Individuals remaining in this status may not receive a graduate degree. Courses taken while a person is in this status will be identified as non-degree on the student's transcript. The non-degree student who, after taking courses in non-degree status determines to seek a graduate degree, must be formally admitted to a graduate degree program under regular admission procedures. Graduate programs may or may not accept courses taken while a student is in non-degree status. No program may accept more than nine credits taken in non-degree status. Applicants admitted on a non-degree basis are not guaranteed regular full-admission status. Certain course restrictions may apply for non-degree students.



Admission Procedures

Application forms and information about graduate programs may be obtained by writing to:

Division of Graduate Studies
Clarion University of PA
108 Carrier Administration Building
840 Wood Street
Clarion, PA 16214-1232

Routine admission policy requires that all graduate applicants submit:

1. a completed application form;
2. official transcripts issued from colleges or universities in sealed envelopes of all undergraduate and graduate work (partial transcripts are acceptable, but evidence of a degree must be submitted before a student may enroll in classes);
3. *three current professional recommendations; and
4. a \$30 non-refundable application fee.

Some graduate programs require additional information or procedures.

*May not be required of non-degree students.

Admission Application Deadlines for Regular, Provisional, Transient, and Non-Degree Admissions

The following deadlines apply to graduate applicants.*

Communication Sciences and Disorders applicants: February 15—last date to complete an application file for upcoming academic year.

Other programs

Fall: Aug. 1— last date to complete an application file

Spring: Dec. 1— last date to complete an application file

Summer: May 1— last date to complete an application file for Summer I

June 1— last date to complete an application file for Summer II

*International students must complete an application file at least four months before the term applicant wishes to begin study. See section below on “Admission of International Students.”

Admission of International Students

Clarion University welcomes international students to its campus and has an Office of International Programs to assist students from other countries in achieving a successful educational experience at Clarion. International students may write to:

Office of International Programs
Clarion University of Pennsylvania
Becht Hall, 840 Wood Street
Clarion, PA 16214-1232 U.S.A.

International students seeking admission to graduate study at Clarion University should follow directions specified for all students under “Admission and Degree Requirements.” In addition, the international student applicant must satisfy the following requirements:

1. Submit his or her application for admission at least four months before the term in which he or she wishes to begin study at Clarion.
2. Demonstrate English language proficiency. Acceptable evidence of proficiency is successful completion of Test of English as a Foreign Language (TOEFL) with a score of 550 (600 required for the programs in biology, communication sciences and disorders, and communication education and mass media technology); or satisfactory completion of a bachelor's degree from an



accredited U.S. college or university. Additionally, communication sciences and disorders requires a score of 200 on the Test of Spoken English (TSE). Other evidence may be approved by the Graduate Studies office, such as affirmation of proficiency by a Clarion faculty member, other individual, or organization known to Clarion University.

3. Furnish evidence of adequate financial support on the Financial Support Statement form. The applicant must provide an official statement from an authorized bank certifying that sufficient funds are available to the student to cover costs of university fees and general living expenses for one academic year of study in the United States. Immigration and Naturalization form I-20 will not be issued until the international applicant has submitted the required evidence of financial support.
4. Carry a full program of studies (at least nine semester hours) upon admission and matriculation. U.S. Immigration and Naturalization Service regulations require students holding an "F" or "J" visa to carry a full program of study.
5. Be covered by adequate health insurance. Due to the high cost of health care in the United States, all international students are required to carry comprehensive medical insurance. For further information on insurance, see section entitled "International Students--Medical Insurance Coverage" on page 15.

Academic Policies and Procedures

Academic Honesty Policy

Students at Clarion University shall maintain a high standard of honesty in scholastic work. As members of the university community, students have a responsibility to be familiar with the conduct regulations found in the university catalogs, Student Handbook and Calendar; Residence Hall Handbook; Student Rights, Regulations, and Procedures Handbook, and other university documents. Among the conduct regulations addressed are acts of academic dishonesty, including plagiarism or cheating on assignments, examinations, or other academic work, or without prior approval of the instructor, submitting work already done for another course.

Students shall avoid all forms of academic dishonesty, including but not limited to:

1. **Plagiarism**--the use of another's words without attribution and without enclosing the words in quotation marks. Plagiarism may also be defined as the

act of taking the ideas or expression of ideas of another person and representing them as one's own--even if the original paper has been paraphrased or otherwise modified. A close or extended paraphrase may also be considered plagiarism even if the source is named.

2. **Collusion**--when specifically prohibited in advance by the instructor, collaborating with another person in the preparation of notes, themes, reports, or other written work offered for credit.
3. **Cheating on an examination or quiz**--giving or receiving information or using prepared material on an examination or quiz.
4. **Falsification of data**--manufacturing data, falsification of information, including providing false or misleading information, or selective use of data to support a particular conclusion or to avoid conducting actual research.

Any member of the academic community may bring complaints of academic dishonesty against a student. Sanctions for academic dishonesty can range from a failing grade on a particular assignment or examination to dismissal from the university based on the seriousness of the action and whether it is part of a pattern of academic dishonesty. Instructors imposing a lowered or failing grade on an assignment or course because of a charge of academic dishonesty must inform the student. Students have the right to appeal instructor decisions (*Student Rights, Regulations, and Procedures Handbook*) either through the grade appeal process (see section on Student Rights in the Classroom) or directly to the Conduct Board (see section on Adjudication Appeals) depending on the nature of the dispute. Sanctions extending beyond a particular course, such as suspension or dismissal from an academic program or from the university, can only be imposed as the result of complaints filed under the Disciplinary Procedures Code and after Formal Hearings under this code.



Good Academic Standing

All graduate students are expected to remain in good academic standing by maintaining a cumulative quality-point average of 3.00/4.00 and earning no more than six semester hours of “C” or lower grades in graduate courses.

Students who do not maintain a cumulative quality-point average of 3.00/4.00 and/or who earn more than six hours of credit with grades below a “B” are automatically placed on probation. A student placed on probation must return to “good academic standing” through grades earned in course work during the next semester or summer session in which he or she enrolls. A student may be removed from probation by:

- A. Taking additional courses in his or her program and earning grades sufficient to raise the cumulative average to 3.00/4.00 or above. This single measure may be sufficient unless the student has more than six semester hours of “C” grades.
- B. Repeating courses in which the original grade is less than “B.” A repeat course grade will replace the original grade for quality-point calculations. A maximum of six semester hours of credit may be repeated. Library science students receiving a grade of less than “B” in two courses are disqualified as a candidate in that degree program.

Failure to meet this requirement will result in the student being dropped from the graduate program in which he or she is enrolled.

A student placed on probation automatically loses his or her graduate assistantship. A reapplication for an assistantship will be required once he or she has returned to “good academic standing.”

Transfer of Credit

Some graduate programs allow students to transfer credit for graduate courses taken at other accredited institutions. It is university policy that no more than 30 percent of the total credits for a degree may be transfer credits. Courses transferred must be certified as graduate

level on the transcript and must have a grade of “B” or better. Transfer credit course grades are not computed in the Clarion quality-point average.

Courses already credited toward an earned degree may not be used for a second degree. Correspondence course credits are not accepted for transfer. Course credit will not be transferred until the course has been evaluated and approved. A student enrolled in a degree program at Clarion who wishes to take a course at another institution for transfer to Clarion should obtain prior approval from his or her advisor and department chair. Transfer credit forms are available in the Graduate Studies office.

Residency

Seventy percent of all credits required for completion of a graduate degree must be earned in course work offered by Clarion University. All graduate-degree programs require a minimum of 30 semester hours of credit. Individual programs may require more than 30 semester hours.

Timeliness of Enrollment and Completion of Degree

It is expected that an applicant admitted to graduate study will enroll for course work at once. Students who do not enroll at Clarion for graduate courses in programs to which they are admitted within 12 months following admission may be required to reapply before they can enroll. Information about eligibility to enroll in classes may be obtained from the Graduate Studies office.

A degree must be completed within six years from the date of initial enrollment. Extensions may be allowed only by approval of the department chair, dean of the college in which the student’s program resides, and the dean of Graduate Studies.

Full-Time Status

A graduate student enrolled in nine semester hours of course work in a term is considered a full-time student.

400-Level Courses

Not all 400-level courses can be taken for graduate credit. Students should consult with graduate program coordinators or their advisors to determine 400-level courses that have been approved for graduate credit. These approved 400-level courses are listed each semester in the Graduate section of the published Schedule of Classes. *Note: courses taken at the 400-level for undergraduate credit cannot be repeated for graduate credit.* The maximum number of 400-level courses accepted toward degree requirements varies among the graduate programs. See specific program descriptions and requirements.



Withdrawals

All class withdrawals must be made through the Office of the Registrar, 122 Carrier Administration Building. Classes from which a student withdraws during the period of drop/add will not appear on his or her record. Withdrawals between the end of the second and ninth weeks may be made without penalty. After the beginning of the 10th tenth week of a semester or the second half of a summer session, a course from which a student withdraws shall be finally reported with a grade of "E." Exceptions may be made for withdrawals due to extenuating circumstances such as illness or some other unavoidable occurrence.

If a student is on probation at the time of withdrawal from all classes and the withdrawal is after the 12th week of the semester, he or she will not be permitted to return for the following semester unless the withdrawal is based on extenuating circumstances.

If a withdrawal is not made through the Office of the Registrar, a failing grade will be recorded for the affected course(s).

Any student who withdraws from the university either during or at the end of a semester must notify the Office of the Registrar of his or her intention to withdraw and the reason for withdrawal. This is necessary for completion of the student's permanent record. Failure to comply with this regulation will constitute an unofficial withdrawal and may affect the student's chances of future readmission or his or her obtaining an honorable dismissal.

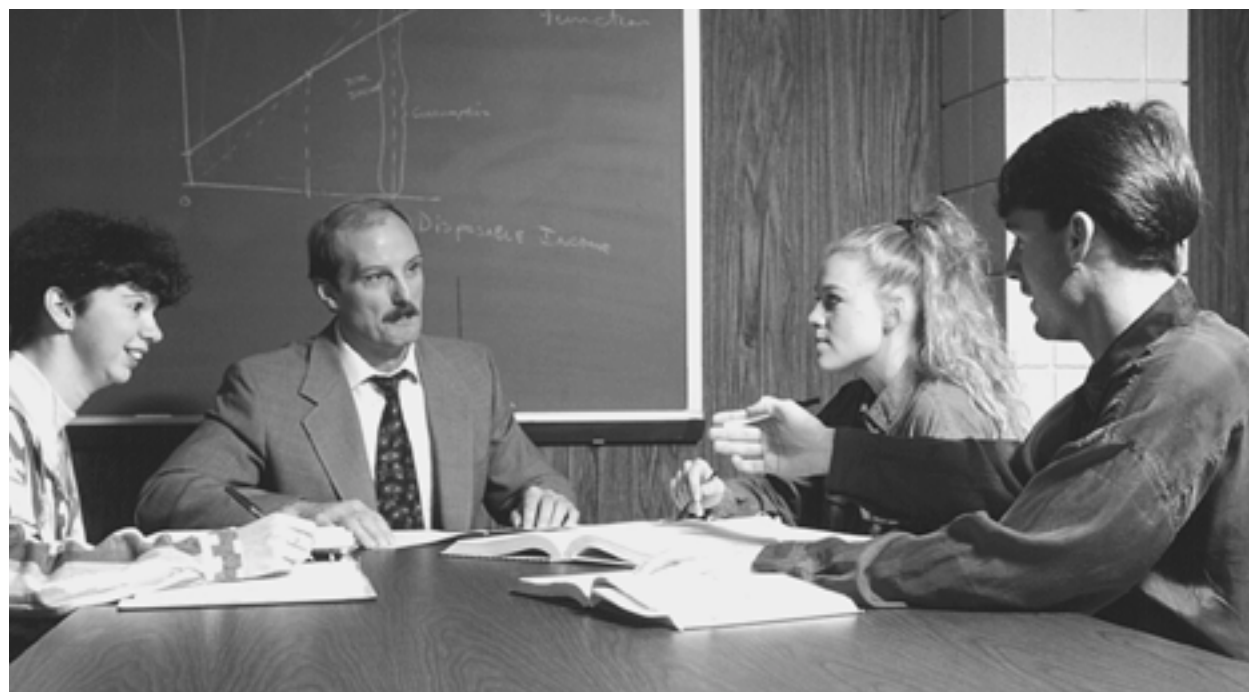
Grading System

A	excellent
B	good
C	satisfactory
D	poor
E	failure
CX	credit by examination
IP	in progress
I	indicates incomplete work
P	passing
W	indicates withdrawal from a course
WX	indicates withdrawal from the university
Z	grade not submitted (Temporary)
AU	audit

Auditing Courses

With the permission of the instructor, interested students may audit courses if there is space available in the course from the first day of class and up until the end of the drop/add period. Students must declare their intentions in writing to the Office of the Registrar before the end of the drop/add period. Laboratory courses may not be taken as an audit. Students who enroll in a course for credit may change to an audit grade only during the drop/add period. Likewise, students who enroll in a course to audit may only change to credit during this same period.

Courses taken as an audit will be recorded on the official transcript with a grade of "AU"; no credit or letter grade will be received. Graduate-level courses taken as an "audit" cannot be counted as credits in a degree program and cannot be repeated later for credit or a letter grade.



Incomplete Grades

The “I” grade may be used when a student has completed the major portion of the requirements for a given course, but for reasons beyond expected control, such as illness or family emergency, cannot complete all requirements. Normally, incomplete grades must be removed by the end of the first semester subsequent to the awarding of the incomplete. Extensions may be granted if the instructor awarding the incomplete deems that more time is necessary to fulfill course requirements. Research and thesis incomplete grades normally continue beyond one semester.

An incomplete that is not converted to a final grade by the end of the semester following its issuance and is not approved for extension by the instructor becomes a failing grade.

No one may be cleared for graduation with “I” grades on record.

In Progress Grades

The grade “IP” is given for thesis work and/or courses at the graduate level that might take more than a semester for completion. The grade “IP” is given only when the work in a course extends beyond the semester or term originally scheduled. It implies satisfactory performance. The grade “IP” will not alter the quality-point average of the student since hours attempted, hours earned, and quality points earned will be entered in cumulative totals once the final grade is submitted. The “IP” grade shall remain on the student’s transcript until the instructor submits a grade.

Advisement

Upon admission to a graduate program, a student is assigned an advisor. The advisor will assist the student in planning an individual program and in maintaining progress within the program.

Research, Theses, and Comprehensive Examinations

The individual graduate programs within the university establish research, theses, and/or comprehensive examination requirements. The student should refer to the section of this catalog presenting specific programs to determine exact requirements.

Student Responsibility for Academic Requirements

Provisions in the Clarion graduate catalog cannot be considered an irrevocable contract between the university and the student.

The university makes every effort to keep information in the catalog current. It must reserve the right, however, to amend any academic, administrative, or disciplinary policies or regulations and to update fees or service charges described in this catalog without prior notice to persons affected.



Students are held responsible for reading and understanding the academic, administrative, and disciplinary policies or regulations and for understanding the general education requirements as published in the catalog when they matriculate. They are held responsible for the requirements of a major in effect at the time they officially declare a major. If students change majors, they are responsible for the requirements of the major in effect when they officially change majors.

Requirements for graduation as well as those for various curricula and degree programs may change after students matriculate at Clarion. Such changes will not be retroactive, although students will have the option to elect to meet the new program requirements, if desired. Exceptions may be necessary when changes in professional certification or licensure standards mandate such changes in requirements or programs.

Nondiscrimination on the Basis of Disability

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 have provided the framework for those individuals with disabilities to not be discriminated against. Clarion University, which is a federally funded institution, must provide for nondiscrimination under its Federal grants and programs. Thus, “no otherwise qualified individual with a disability in the United States... shall, solely by reason of her or

his disability be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance..." (29 U.S.C. § 794(a), see also 29 U.S.C. § 706(8), see also 42 U.S.C. §§ 12132, 10102, 12114). An "individual with a disability" has been defined, with certain exceptions, as "any person who (i) has a physical or mental impairment which substantially limits one or more of such person's major life activities, (ii) has a record of such an impairment, or (iii) is regarded as having such an impairment. (See 42 U.S.C. § 12101 et. seq. And 29 U.S.C. § 701 et. seq.)

The applications of these laws at Clarion University ensures that:

1. no qualified individual with a disability may be excluded solely by such disability from any course, or courses of study;*
2. classes will be rescheduled for those students with mobility impairments if they are scheduled for inaccessible classrooms;*
3. academic degree or course requirements may be modified in certain instances to ensure full participation by students with disabilities;*
4. alternate methods of testing and evaluation are available in all courses offered by the university for students with documented requirements for such methods;*
5. auxiliary aids are made available by the university for students with impaired sensory,

manual, or speaking skills;*

6. certain campus rules and regulations may be waived if they limit the participation of students with disabilities;* and
7. housing opportunities, employment opportunities, and other opportunities for students with disabilities are equal to those of students without disabilities.*

**Note: The university is only legally obligated to provide academic adjustments to a qualified individual with a disability who has made his or her need known and when it has received the appropriate documentation of such disability to support the adjustment. Thus, the students must provide the university with the necessary medical and diagnostic information to support their requests, including specifying what academic adjustments are needed.*

The Disabilities Services Office serves as the university's primary vehicle for assisting students with physical and/or learning disabilities. Students are encouraged to contact the coordinator in B27 Campbell Hall to discuss their need for disability related services. Also, as part of the university's registration process, students are provided with a form that enables them to notify the university of request for accommodations and services that are related to a disabling condition. After receipt of this form, the coordinator of the Disabilities Service Office will contact each student to discuss the specific request(s) and gather additional information if necessary.



Information on services for students with disabilities may be obtained by contacting the coordinator, Disabilities Services Office, B27 Campbell Hall, 814-393-2249.

Inquiries regarding services and facilities accessibility may also be obtained by contacting the assistant to the president for social equity, 207 Carrier Hall, 814-393-2000.

Student Support Services Program

The Student Support Services Program is available to students with disabilities who desire additional help in the form of academic advising, freshmen seminars, informational workshops, and assistance with study skills. Students interested in obtaining information about the program should contact the director, Student Services Program, B20 Campbell Hall, 814-393-2347.

Tuition and Fees for Graduate Study

Tuition and fees are subject to change without notice. Unless otherwise noted, all payments must be made by check or money order drawn to the order of Clarion University. Tuition and fees not covered by financial aid are to be paid at the beginning of the semester or summer session.

Summary of Tuition and Fees (Per Semester) 2000-2001 Academic Year

- I. APPLICATION FEE (non-refundable) \$30
- II. BASIC GRADUATE TUITION (subject to change without notice)

Pennsylvania residents:

- Full-time (9-15 credits) \$2,069
- Each additional credit over 15 \$230
- Part-time per credit (fewer than 9 credits) ... \$230

Non-Pennsylvania residents and international students:

- Full-time (9-15 credits) \$3,504
- Each additional credit over 15 \$389
- Part-time per credit (fewer than 9 credits) ... \$389

III. RESIDENCE HALL AND DINING FEES

- Residence (double room) \$1,210
- Dining (standard 19-meal plan) \$721
- All residence hall students must pay for both residence hall and dining.

IV. INSTRUCTIONAL SUPPORT FEE

- Full-time (9-15 credits) \$189.60
- Each additional credit over 15 \$ 21.07
- Part-time per credit (fewer than 9 credits) ... \$21.07

V. HEALTH CENTER FEE

- Full-time (9-15 credits) \$62.57
- Each additional credit over 15 \$ 6.95
- Part-time per credit (fewer than 9 credits) \$6.95

VI. STUDENT CENTER FEE

- Full-time (9-15 credits) \$125.14
- Each additional credit over 15 \$13.90
- Part-time per credit (fewer than 9 credits) \$13.90

VII. STUDENT ACTIVITY FEE

- 1-8 credits \$31.25
- 9 or more credits \$57.50

VIII. RECREATION CENTER FEE

- 1-5 credits \$10
- 6-8 credits \$20
- 9-11 credits \$40
- 12 or more credits \$80

IX. TRANSCRIPT FEE (one time charge) \$15

Transcript release is limited to a maximum of three per request per day.

X. LATE FEE \$25

A late fee will be assessed to students who have not paid any balance not covered by financial aid at the start of the semester.

XI. THESIS BINDING \$49.50

Minimum three copies @ approximately \$16.50 per copy. Final cost subject to change. Payment to be made when thesis submitted to Graduate Studies for binding.

XII. GRADUATION FEE \$15

A graduation fee is charged to each graduating student.



Refund Policies

Basic Fees, University Residence Hall, Dining Charges, and Student Activity Fee

Refunds are not granted on an automatic basis. A student eligible for a partial refund of basic fees and residence hall charges must officially withdraw from the university through the Registrar's Office, located in 122 Carrier Administration Building. Refunds of 100 percent are granted only if student withdraws by the end of the first day of the semester. There is no refund for the late fee.

Partial refunds approved for payment are based upon percentage of the fees paid. The following schedule applies to both full-time and part-time students.

SEMESTER WITHDRAWALS

1st week	90% refund
2nd week	80% refund
3rd week	70% refund
4th week	60% refund
5th week	50% refund
After 5th week	0% refund

For refund purposes, a "week" is defined as each five consecutive days university classes are in session.

Policy Related to Returned Checks

It is the student's responsibility to assure funds are available at his/her bank when a check is presented for payment. If a check is returned for insufficient funds, the student will be notified the check is uncollectible. He or she will then be required to pay the original amount plus a \$25 late-registration fee and a \$10 penalty for handling the uncollectible check. Payments made in redeeming an uncollectible check and paying the related late fee and penalty must be by certified check or money order within 10 days of notification or the student will not be permitted to attend classes.

Graduate Student Support Services

Graduate Assistantships

Each year a limited number of graduate assistantships are awarded to individuals with regular full-admission status to a graduate program. Graduate assistants work 10 or 20 hours a week in assignments related to academic programs or university-wide service. They are paid an hourly stipend and receive a tuition waiver for up to 15 credits a semester. There are no summer assistantships.

Recipients of a graduate assistantship must take at least 6 credits a semester, perform assigned duties in a satisfactory manner, and remain in good academic standing. There is an approved evaluation process and instrument for each graduate assistantship position that is uti-

lized annually. Graduate assistants are evaluated on their performance in a specific position.

Students wishing to apply for a graduate assistantship should do so at the time of application to graduate study at Clarion University. Graduate assistant application forms are included in the application for admission to graduate study packet and are available in the Graduate Studies office and academic departments.

Financial Aid

In addition to graduate assistantships, the following financial aid may be available to graduate students.

Loans

FEDERAL PERKINS LOAN PROGRAM-To be eligible for consideration for this 5 percent loan, a student must complete an application form, have a current FAFSA form on file in the Office of Financial Aid, be a citizen of the United States or have declared his or her intention to obtain citizenship, and be enrolled or accepted for enrollment as a student.

These loans, which are non-interest bearing while a student is enrolled, are available to a maximum of \$2,000 each year.

FEDERAL STAFFORD LOAN PROGRAM-Loans with a cap of 8.25 percent interest are generally available from local banks and savings and loans associations. Loans are for a maximum of \$8,500 per academic year, with an overall limit of \$65,000 for graduate and undergraduate loans. Loans are based on need, which must be demonstrated through an approved need analysis system. Our approved form is the FAFSA application.

Veterans

Clarion University is approved to offer training under the various GI bills. Students who are entitled under one of these bills should contact the veterans counselor immediately after being accepted for admission to the university in order to secure additional instruction. This procedure is necessary so veterans may be included on the monthly payroll. The university veterans counselor is located in the Office of Financial Aid, 104 Egbert Hall, 814-393-2315.

University Libraries

The university libraries, comprised of Carlson Library on the Clarion Campus and Suhr Library on the Venango Campus, offer graduate students a broad collection of resources and services to support class work and research. In addition to more than 350,000 print volumes, the university libraries provide electronic indexing and full-text access to thousands of periodicals, newspapers, and reference sources in a range of subject areas. Interlibrary loan service further enables users to expand their research, and library instruction sessions are scheduled each term to help students become adept at finding and using information.



Computing Services

The George R. Lewis Center for Computing Services, located on the ground floor of Still Hall, is the site of Clarion University's central computing system that utilizes a Compaq Corporation VMS cluster consisting of two Alpha 4100s and two Alpha 2100s. Telephone registration is handled by a Touchnet communication system. Computing Services supports 12 general student access labs located in various buildings across the Clarion and Venango Campuses.

All students have access to Internet, e-mail and the capability to create their own web pages. Academic services for instruction and research include the following computer languages and packages: COBOL, FORTRAN, BASIC, PASCAL, TSP, SAS, C, C++, SPSS, and business simulations.

Student Health Service

The Keeling Health Center provides health services and wellness promotion to the student community of Clarion University. The health center is located at the northwest corner of the campus near Givan Hall. A highly credentialed staff, including contracted physicians, certified registered nurse practitioners, and registered nurses certified in college health provide specialized student health services. Operating hours are announced at the beginning of each semester and designed to accommodate the needs of the student population. After-hour and emergency services are available from a variety of community providers.

Health issues are approached holistically, taking into consideration individual physical, spiritual, environmental, social, intellectual, occupational, and emotional issues. Specific services available through the health center include: physical examinations, immunizations, allergy injections, medication, pregnancy testing, treatment of minor illnesses and injuries, education, and referral to appropriate community resources. Specific service offerings are evaluated on an ongoing basis.

An auxiliary support fee assessed at the beginning of each semester provides for an unlimited number of visits to the health center. There may be additional charges for any medications or procedures associated with the visit. Students are strongly encouraged to contact their primary insurance carrier to determine the conditions and limitations, if any, on medical treatment away from home.

Student Health Insurance

The health center fee which students are assessed applies only to treatment and services at Keeling Health Center. Diagnosis, treatment, services, or facilities not available at the health center, but required due to an illness or accident, are the financial responsibility of the student. These would include, but are not limited to, X-rays, ambulance, emergency room treatment, setting and casting breaks, and hospitalizations. Without insurance, the cost involved could jeopardize a student's ability to continue his or her education. Therefore, if the students are not covered by parental or their own medical insurance, we strongly urge such coverage be secured. In ad-

dition, university policy requires students have medical insurance coverage to be eligible for participation in university sanctioned, sponsored, and/or approved activities. The assumption is that when students participate in such activities they are covered by medical insurance and proof of coverage can be produced upon the university's request.

An accident and sickness insurance plan is available to all Clarion University students. For further information on this plan, contact the Student Affairs Office, 222 Egbert Hall, Clarion University, Clarion, PA 16214-1232, telephone 814-393-2351.

International Students—Medical Insurance Coverage

Due to the high cost of health care in the United States, medical insurance is required of all international students enrolled at Clarion University. Students who do not show proof of health insurance coverage comparable to the group insurance plan contracted by Clarion University will automatically be enrolled in the university endorsed program, and be responsible for payment. The current cost of the group insurance plan is approximately \$400/year, full payment of which is required at the time of registration (first week of the semester). Please understand that the medical insurance premium is not included in the statement of account issued by the university for tuition, fees, and room and board. A separate payment of cash or money order is required. Details of payment will be explained at the time of application for insurance.

If an international student has coverage through his or her sponsor or through another agency in his or her home country that provides adequate coverage during the student's stay in the United States as a student, the international student may request to be exempt from subscribing to the group plan offered through Clarion University. Coverage **must** include:

- *minimum medical expense benefit of \$100,000
- *minimum repatriation expense benefit of \$15,000
- *minimum medical evacuation benefit of \$15,000

Students requesting exemption from the group plan are required to submit details of insurance coverage to the Office of International Programs upon arrival at Clarion University. Details must be written in English and include the following information: company name and address, phone and fax numbers; complete name of policy holder and identification number, if assigned; effective date of coverage and expiration date of coverage; and policy details of benefits (as described above).

Housing

Limited housing for graduate students is available in the university-supervised residence halls. For information, students should contact the Office of Residence Life, 228 Egbert Hall, telephone 814-393-2352.

Any arrangement for housing in the community is a business relationship between a student and the house-

holder. The Office of Residence Life maintains a limited listing of available housing in the community, but the university does not approve or make recommendations related to private off-campus housing accommodations.

Parking and Automobile Regulations

All provisions of the Vehicle Code of the Commonwealth of Pennsylvania as supplemented by parking regulations issued by the chancellor, State System of Higher Education, and Clarion University, will be strictly enforced on the Clarion University Campus. Authority for such enforcement rests with the director of public safety. Individuals who fail to pay fines will be reported to the district magistrate, and upon conviction will be subject to penalties provided by law.

Students who park a vehicle on university property in an area requiring a permit must register with the Department of Public Safety. A valid university parking permit must be hung down from the inside rear-view mirror and clearly be visible from the front and rear of the vehicle when the vehicle is parked in a lot requiring a permit. The enforcement of parking permit regulations for employee lots, commuter lots and metered parking shall be from 7:30 a.m. until 4:30 p.m., prevailing time, Monday through Friday, unless otherwise designated. For more information on parking, visit the parking website at www.clarion.edu/parking/

Career Services

The Office of Career Services is a centralized career development office serving all Clarion University students and alumni. Individual assistance, programs, and resources are provided to help students: (1) make informed career and educational decisions, (2) prepare for the job search, and (3) begin the transition from campus to career.

Since career planning is a continuous process, students are encouraged to make Career Services an integral part of their entire university experience. The services are designed to educate and guide students through the career planning process: discovering abilities and interests, exploring educational and career options, making decisions, planning activities to progress toward desired goals, implementing a job search, or applying to additional graduate programs.

For those initiating a job search, Career Services provides on-campus recruiting by employers; individual counseling for students with job search concerns; a career library of employer and graduate school information; technology for developing job search materials; the "Careerline" newsletter; job search workshops; an individualized resume service; a mock interview program; job fairs; and on-line job opportunities.

Information on the post-graduation activities of Clarion's graduates is available upon request from the Office of Career Services.

MASTER OF SCIENCE DEGREE IN BIOLOGY

Master of Science Degree in Biology

College of Arts and Sciences

Graduate Faculty

Professors: W. Barnes, W. Belzer, P. Dalby, K. Eggleton, S. Harris, R. McPherson, T. Morrow;
Associate Professors: L. Bering, D. Smith, C. Williams; **Assistant Professors:** W. Jetkiewicz, D. Lott, A. Turner

Program Objectives

The primary objectives of the Master of Science program in biology are to:

- Prepare professional biologists.
- Prepare individuals for leadership roles in environmental, educational, and laboratory-oriented science.
- Prepare biologists for research-oriented careers.
- Prepare individuals for further graduate work.

A candidate for the Master of Science program in biology may concentrate in one of several areas of emphasis including: physiology, ecology, behavior, genetics, microbiology, immunology, molecular biology, and systematics.

Definition of Terms

Departmental Graduate Committee-Committee which reviews all applications for admission to the M.S. in Biology Program and makes recommendations to the department concerning admission of students and the existence of deficiencies.

Graduate Program Coordinator-A designated advisor in the Department of Biology who meets all new graduate students and assists them in planning their first semester program of courses and/or recommends them to major advisors when desirable.

Major Advisor-A member of the graduate faculty who accepts a student for counseling and advisement during his or her course work and research and in the presentation and defense of his or her thesis.

Graduate Research Committee-A committee of at least three members selected from the graduate faculty to aid the student in determining a course of study and to prepare, administer, and grade the student's comprehensive exam and thesis. The student's major advisor will chair this committee.



Admission Requirements

Division of Graduate Studies admission requirements apply with the following addition:

Applicants must submit the Department of Biology's preliminary application form and Graduate Record Exam (GRE) general test scores.

Full-admission status will be granted to applicants who have a bachelor's degree in biology and a 2.75 overall quality-point average (QPA) on a 4.0 scale. Applicants are expected to have completed the equivalent of the Clarion University undergraduate biology requirements in chemistry, mathematics, and physics, as well as one year of general biology, and one semester each of cell biology, genetics, and ecology. Any deficiencies will be noted in the acceptance letter, and the student will be required to remove them by exam or by taking the course(s) as soon as possible. Under exceptional circumstances course deficiencies may be waived.

Provisional admission status may be granted to applicants who have an overall QPA less than 2.75 and/or a bachelor's degree in a major other than biology. An applicant admitted to provisional status may be admitted to full status after completing nine semester hours of graduate study with an A or B grade in each course and removal of all deficiencies.

Admission is also contingent on the student identifying a biology faculty member who agrees to serve as his/her major advisor. It is strongly recommended students visit the campus and interview with potential advisors early in the application process.

Degree Requirements

To fulfill degree requirements for graduation, the student must:

- Remove all academic deficiencies in a manner acceptable to the Department of Biology as recommended by the student's major advisor and graduate research committee.
- Complete a minimum of 30 semester hours, including 24 hours in required courses with a minimum QPA of 3.0/4.0, and a minimum of six hours of Biology 700. Students must take two Biology 500 Seminar courses, one of which must be in a subject area outside their research emphasis. Seminar courses are included in the minimum course hour total.
- Pass a written comprehensive examination after completing 18 credits with a cumulative QPA of not less than 3.0. At least three subject areas in biology and/or disciplines relevant to the student's course of study, chosen in agreement by the major advisor, graduate research committee, and the student, must be included in the comprehensive examination. A student who fails the comprehensive examination may retake it once by agreement with the major advisor and graduate research committee. Failure of the comprehensive examination for a second time will result in dismissal from the graduate program.
- Conduct an original independent study and submit a written thesis. The candidate's graduate committee must approve a written prospectus of the research before research is initiated, usually at or before the close of the second semester in residence. When a preliminary draft of the thesis is judged by the major advisor to be suitable, the candidate will provide each member of his or her committee with a copy of the preliminary draft. The date of the oral thesis defense must be announced to the general college faculty at least two weeks before the defense. The defense will be conducted by the graduate research committee, which will report its approval or disapproval along with recommended revisions. At least five copies of the final draft of the thesis shall be prepared by the student, who will deliver them to the major advisor who will obtain the appropriate signatures and deliver the copies to the Office of Graduate Studies. The Office of Graduate Studies will charge a binding fee to the student.

Only 400-, 500-, 600-, and 700-level courses can be taken for graduate credit. No more than six semester hours of approved 400-level courses taken for graduate credit may count toward the master's degree (see below).



Placement

A great need for good professional biologists exists at the present, and should continue into the near future. Projections by both industry and federal government sources indicate that the need for life scientists and health workers should increase. The need for individuals with additional or more specialized training than required for a B.A. or B.S. degree is increasing. Placement of past graduates of the program has been excellent in teaching and research; federal, state, and local government; private industry; medical technology; dentistry; optometry; and doctoral and specialist programs.

Graduate Assistantships

A limited number of graduate assistantships and/or research assistantships are available. Departmental graduate assistants are assigned to assist in laboratory supervision in the undergraduate program in biology. Research assistants generally work on a grant-funded project directed by a faculty member. Graduate assistants must have full-admission status.

All applicants for graduate assistantships must first complete the regular admission procedure and submit the

application for a graduate assistantship to the Department of Biology. Applicants for graduate teaching assistantships must request their referees include in their three letters of recommendation a statement concerning the student's potential as a laboratory assistant.

All new applicants for graduate assistantships will be required to complete an interview before appointment. Graduate assistantships are usually renewable for two years if the student has made reasonable progress toward the degree (see below).

New applicants for graduate assistantships must submit completed applications no later than April 15; appointments are usually made by May 1 of each year. Continuing students must submit an assistantship application packet by April 1.

Advisement

Before course work begins, the admitted student should meet with the graduate program coordinator or assigned major advisor for orientation and assistance in planning the first semester program. The student should initiate the selection of a major advisor and a graduate committee during the first semester at Clarion. The student and the graduate committee shall develop an academic research program leading to the M.S. degree. The student will be responsible for scheduling a Graduate Committee meeting once per semester to evaluate

progress toward the completion of the program. Minutes of the graduate meetings will be recorded by the major advisor and will become a part of the student's permanent file.

A minimum of nine credits per semester is considered a full load for graduate students. Twelve semester hours (three credits per session) is a maximum load during summer sessions. Exceptions may be authorized by the dean of Graduate Studies upon recommendation by the Department of Biology acting upon a written petition by the student.

It is the candidate's responsibility to file, with the aid of his or her major advisor, an Application for Graduation before the published deadline during the semester in which he or she intends to graduate.

Courses

Courses may be taken from any curriculum in the Graduate Catalog. Students are encouraged to go outside the Department of Biology for courses if their program goals and career interests will benefit as determined by their graduate research committee.

While students can, and frequently do, take undergraduate courses at all levels of instruction, only 400-, 500-, 600-, and 700-level courses can be taken for graduate credit. No more than six semester hours of 400-level courses may count toward the master's degree. The 400-level courses that may count toward the master's degree



are BIOL 460, 461, 464, 470, 471, CHEM 453, 463, GEOG/ES 400, 425, 470, and 490. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit.

Reasonable Progress Toward Degree

It is the expectation of the Biology Department that the first priority of all full-time graduate students is the completion of the requirements of the master of science degree in a timely manner. The student's major advisor and graduate research committee will determine reasonable progress toward completion of the degree. At a minimum, reasonable progress will include:

- (1) submission and tentative approval of the research prospectus by the student's major advisor and graduate research committee by the end of the second semester in residence;
- (2) maintaining a minimum QPA of 3.0 in all course work attempted;
- (3) holding graduate research committee meetings once per semester; and
- (4) attempting the comprehensive examination after completing 18 semester hours.

Students who are applying for a second year of support as a departmental graduate assistant must submit evidence of relevant degree progress to the departmental graduate committee that includes documentation of the criteria listed above in addition to evidence that professional duties associated with the current year's assistantship have been completed in a satisfactory manner.

Physical Facilities

The Department of Biology is located in the Peirce Science Center, a four-story teaching and research building. This facility is well supplied with sophisticated equipment and instrumentation necessary for studying the many facets of biology. In addition, the department also maintains continually expanding herbarium and vertebrate biology collections, animal and aquarium rooms, an environmental chamber room, a cell culture laboratory, and a greenhouse located adjacent to the building. Recently renovated molecular biology/biotechnology and ecology laboratories provide research support for students in these growth areas. Field work is conducted on land owned by the university adjacent to the campus or on the huge expanse of state, federal, or privately owned land/waters in close proximity to the university. Ecologically interesting areas within a 100-mile radius of the campus include the Jennings Nature Preserve, Allegheny National Forest, Cook Forest State Park, Tionesta Scenic Area, Heart's Content Scenic Area, Presque Isle State Park, Power Mill Nature Reserve, and the Pymatuning region.

Pymatuning Laboratory of Ecology

Because of a unique cooperative program with the University of Pittsburgh, Clarion University is able to offer an outstanding program of studies in ecology. Courses are taken at Clarion Campus during the academic year. In the summer, an excellent academic program is offered at the Pymatuning Laboratory of Ecology, a unit



of the University of Pittsburgh. Classes are taught and research is directed by members of both institutions. The laboratory is located approximately 1.5 hours northwest of Clarion on the shores of the Pymatuning Reservoir.

The teaching and research facilities of the field laboratory are on a site within a wildlife sanctuary and propagation area managed by the Pennsylvania Game Commission. A hatchery of the Pennsylvania Fish Commission is adjacent to these facilities. The housing and dining area for the laboratory is located three miles away,

on the public portion of the Pymatuning Reservoir. A waterfront area is available for recreational use by students and staff.

Release of Data from M.S. Thesis-Publication Policy

Publications resulting from research done at Clarion University shall give credit to people involved in the research, to Clarion University, and to any granting agencies that supported the research.

Biology Courses

- BIOL 460:** *COMPARATIVE VERTEBRATE ANATOMY* **3 s.h.**
This course traces the most important trends in the evolution of basic structures in vertebrate lines and conveys an appreciation of how the mammals came to possess the combination of characters that make this group unique. Two lectures and three laboratory hours weekly. Prerequisites: BIOL 155/156. Spring, even-numbered years.
- BIOL 461:** *VERTEBRATE EMBRYOLOGY* **3 s.h.**
A descriptive study of the development of vertebrates, including early processes and the formation of organ systems. Two lectures and three laboratory hours weekly. Prerequisite: One year of biology. Spring, odd-numbered years.
- BIOL 464:** *DEVELOPMENTAL BIOLOGY* **3 s.h.**
A study of the major processes in development and their underlying mechanism. Includes a descriptive study and mechanisms such as differentiation, induction, and morphogenesis. Materials deal primarily with animal development. Two lectures and three laboratory hours weekly. Prerequisites: BIOL 155/156, 201, and General Chemistry. Fall, annually.
- BIOL 470:** *ANIMAL ECOLOGY* **3 s.h.**
A course dealing with the interrelationships of animals and their environment, including physical and biological factors. Discussions and investigations will include animal distribution, predator-prey interactions, competition, species diversity, energetics, population, and community organization. Field and laboratory studies included. Prerequisite: BIOL 202. Spring, even-numbered years.
- BIOL 471:** *PLANT ECOLOGY* **3 s.h.**
An in-depth approach to the interaction of plants with the physical and biotic environments at population, community, ecosystem, and landscape scales. Lecture and discussion will focus on current topics in plant ecology such as disturbance, succession, herbivory, dispersal, competition, and environmental stress. Laboratory will include field-based experimental and descriptive investigations of plant populations and communities. Two hours lecture/discussion and three laboratory hours weekly. Prerequisite: BIOL 202. On demand.
- BIOL 500:** *GRADUATE SEMINAR* **1-2 s.h.**
A survey of current literature, concepts, and theories from selected fields of biology. Two discussion hours weekly. By arrangement.
- BIOL 502:** *BIOMETRY* **3 s.h.**
Collection, analysis, and presentation of biological data. Fundamental aspects of designing and executing descriptive and experimental studies with emphasis on biological research. Applications to undergraduate and graduate research in progress in the Department of Biology are stressed. Three lecture hours per week. Spring, alternate years.
- BIOL 503:** *SPECIAL TOPICS IN BIOLOGY* **1-4 s.h.**
Semi-independent studies of topical material under the guidance of the instructor. Maximum credit allowable toward graduation: nine semester hours. Prerequisites: permission of instructor and the student's graduate committee.
- BIOL 505:** *ECOLOGICAL APPLICATIONS* **3 s.h.**
A case history approach to the analysis and possible resolution of both terrestrial and aquatic environmental problems. Students will analyze the problem from a number of perspectives, including the biological, in an assessment of the problem. Sample design, cost considerations, data collection, and analysis will be incorporated into the assessment. The overall assessment of the problem and possible resolution will be conveyed both orally and in a written format. This course is considered a capstone for students in the Applied Ecology Program, but is appropriate for other students who meet the prerequisites. Prerequisites: BIOL 202, or permission of the instructor. BIOL 493 and 494 are recommended. Spring, alternate years.
- BIOL 520:** *TERRESTRIAL BOTANY* **3 s.h.**
A field course emphasizing the identification, distribution, and ecology of upland vascular plants of Western Pennsylvania. Field and laboratory projects will focus on plant characteristics, taxonomic relations, floristics, habitat relationship, inventory methods, and plant community description and dynamics. (Pymatuning)

- BIOL 521:** *AQUATIC ENTOMOLOGY* **3 s.h.**
 Emphasis in this course is on identification of the major groups of invertebrates playing a role in natural communities and on the methods of quantifying their relative importance in the community. (Pymatuning)
- BIOL 522:** *AQUATIC BOTANY* **3 s.h.**
 Study of freshwater algae and aquatic vascular plants in field communities, methods of quantifying relative numbers and mass, and structural and physiological adaptations to the aquatic environment. (Pymatuning)
- BIOL 523:** *EXPERIMENTAL VERTEBRATE ECOLOGY* **3 s.h.**
 Designed to give knowledge of basic field identification, capture techniques, quantification, and natural history of some of the common vertebrates of Pennsylvania. (Pymatuning)
- BIOL 524:** *MICROBIAL PHYSIOLOGY* **4 s.h.**
 A study of the physiological reaction involved in the growth, reproduction, and death of microbes. Consideration is placed upon the metabolism of carbohydrates, proteins, vitamins, and fats. Enzymes, oxidation-reduction potentials, energy relationships, membrane potentials, and nutrients are considered. Prerequisites: General Microbiology and Biochemistry or permission of instructor. Two lecture and four lab hours per week.
- BIOL 525:** *FISHERIES BIOLOGY* **3 s.h.**
 Ecology of fish populations, including identification, age and growth, populations estimation and analysis, food habits, environmental requirements, and management considerations. Prerequisites: Environmental Biology or permission of instructor. Three lecture hours per week. Laboratory sessions held on Saturdays. Student must possess a valid Pennsylvania fishing license.
- BIOL 526:** *FIELD ICHTHYOLOGY* **3 s.h.**
 A field course dealing with the interrelationships of fish with their biotic and abiotic environment. Fish in their natural habitats, pollution, and improvements of aquatic habitats, and applied aspects of fish ecology and fishery management will be studied. (Pymatuning). Student must possess a valid Pennsylvania fishing license.
- BIOL 527:** *PLANT TAXONOMY AND FIELD BOTANY* **3 s.h.**
 A field-based course emphasizing the identification, classification, distribution, and evolutionary relationships of vascular plants with particular emphasis on the flora of Western Pennsylvania and adjacent regions. Two lecture and three laboratory or field work hours weekly. Prerequisite: BIOL 155/156; BIOL 202 is highly recommended. Fall, odd-numbered years.
- BIOL 543:** *VIROLOGY* **3 s.h.**
 A study of plant, animal, and bacterial viruses, including the biochemistry of viruses and viral life cycles, techniques in the study of viruses in relation to diseases, tumors, and cancer. Prerequisites: Microbiology or Biochemistry or permission of instructor. Three lecture hours per week.
- BIOL 544:** *IMMUNOLOGY* **4 s.h.**
 A study of cellular immunology, immunochemistry, and immunogenetics, with emphasis on the physiology of immune responses. Prerequisite: Permission of instructor. Three lecture and three lab hours per week.
- BIOL 546:** *PATHOGENIC MICROBIOLOGY* **4 s.h.**
 A study of the bacteria, fungi, and viruses which cause human disease. Laboratory emphasis is on isolation and identification of pathogens and on elementary immunology. Two lectures and four laboratory hours weekly. Prerequisites: BIOL 341. Spring, annually.
- BIOL 550:** *CELL PHYSIOLOGY* **4 s.h.**
 The study of the molecular dynamics of eukaryotic cells. The material deals specifically with eukaryotic cells. Major topics include functional and structural organization of the cell, molecular regulation of cell function, and the cell as a biochemical transducer. Graduate students taking the course must complete an assigned class project. Two lecture sessions and four laboratory hours per week. Prerequisites: Completion of BIOL 155/156, 201, 203, and CHEM 254 or permission of the instructor.
- BIOL 551:** *ADVANCED ANIMAL PHYSIOLOGY* **1-3 s.h.**
 A detailed treatment of fundamental concepts and techniques of animal physiology. Includes literature reviews and individual investigations. Two lecture and three lab hours per week.
- BIOL 552:** *ADVANCED PLANT PHYSIOLOGY* **3 s.h.**
 Life processes and responses of plants to the environment. Topics include water relations, transpiration, translocation, photosynthesis, respiration, metabolism, plant hormones and morphogenesis, photoperiodism, temperature responses, environmental and stress physiology. Two lecture and three lab hours weekly. Prerequisites: BIOL 201, 203, and CHEM 254. Spring, odd-numbered years.
- BIOL 555:** *ENDOCRINOLOGY* **3 s.h.**
 A survey of the chemical and physiological principles of hormonal integrations in animals. Three lecture hours per week.
- BIOL 556:** *ENTOMOLOGY* **3 s.h.**
 A general study of insects, including structure, physiology, classification, economic importance, and relationships. Two lecture and three laboratory or field work hours weekly. Fall, odd-numbered years.
- BIOL 563:** *BEHAVIORAL ECOLOGY* **3 s.h.**
 An examination of the behavior of animals in relation to their natural environment with emphasis on the functioning of patterns of behavior in nature, intraspecific communication and social organization, behavioral relationships between species, and the regulation of behavior by the environment. (Pymatuning)
- BIOL 571:** *HABITAT ECOLOGY-AQUATIC* **6 s.h.**
 A detailed examination is made of the structure and functioning of selected aquatic ecosystems. Emphasis is placed on the interrelationships of functioning systems. (3 credits at Pymatuning)

- BIOL 572:** *TERRESTRIAL COMMUNITY ECOLOGY* **6 s.h.**
A study of the composition, distribution, and dynamics of plants and animals in selected terrestrial communities. Major biomes to be included will be grassland, deciduous forest, coniferous forest, and tundra. Summers only: six weeks. (3 credits at Pymatuning)
- BIOL 573:** *FRESHWATER ECOLOGY* **3 s.h.**
A field-oriented study of the physics, chemistry, and biology of standing and flowing inland waters.
- BIOL 574:** *ECOLOGY OF AQUATIC INSECTS* **3 s.h.**
Examination of the ecological adaptations of aquatic insects with special emphasis on morphology, habitat, and trophic relationships. (Pymatuning)
- BIOL 575:** *EXPERIMENTAL ECOLOGY* **3 s.h.**
Study of designs suitable for investigation of natural populations and communities stressing statistical analysis, and the logical control of experiments in natural situations. (Pymatuning)
- BIOL 576:** *FUNGAL ECOLOGY* **3 s.h.**
Emphasis will be on the role of fungi in the decomposition of organic materials in terrestrial and aquatic communities, and the recycling of mineral nutrients. (Pymatuning)
- BIOL 577:** *FOREST ECOLOGY* **3 s.h.**
Study of the composition, methods of analysis, development, and manipulation of forests in the United States. Emphasis is placed on methods of studying forest composition and development. (Pymatuning)
- BIOL 578:** *BIOME STUDIES* **3 s.h.**
A travel-study program which offers opportunities for study in the various biomes, e.g., grasslands, montane, seashore, etc. Summers only. Prerequisites: Environmental Biology or permission of instructor.
- BIOL 579:** *ALPINE ECOLOGY* **3 s.h.**
Students travel to the Beartooth Mountains in northern Wyoming where they may undertake field studies of aquatic and terrestrial communities along an altitudinal transect. Permission to register granted on an individual basis. (Students will share cost of travel and food. Tents and cooking facilities will be provided.) (Pymatuning)
- BIOL 581:** *MICROBIAL GENETICS* **3 s.h.**
A study of bacterial and viral genetics with emphasis upon mutation, mutant selection, gene action, recombination genetic mapping, gene regulation, and recombinant DNA technology. Laboratory sessions are on an arranged basis. Prerequisite: permission of instructor. Two lecture and three lab hours per week.
- BIOL 583:** *MOLECULAR BIOLOGY* **4 s.h.**
The study of the structural and functional relationships of the major biological macro-molecules, with emphasis on nucleic acid biology. Current systems, methods, and applications of biotechnology, including recombinant DNA techniques, will be emphasized in the laboratory. Two lectures and three laboratory hours weekly. Spring, annually.
- BIOL 585:** *BIOTECHNOLOGY* **4 s.h.**
Advanced topics in the current systems, methods, and applications of recombinant DNA and protein biotechnology. Three lecture/discussion and three lab hours each week. Prerequisite: BIOL 483/583 or consent of instructor. Spring, annually.
- BIOL 591:** *BIOGEOGRAPHY* **3 s.h.**
The subject matter covers aspects of the distribution of plants and animals. Main topics of concern include interpretive approaches to biogeography, paleobiogeographic evidence of past distributions, the centers of origin of various groups, mechanisms and routes of dispersal and colonization, and the dynamics of extinction. Prerequisites: BIOL 202 and 203.
- BIOL 592:** *ANIMAL BEHAVIOR* **3 s.h.**
A study of the biological concepts of animal behavior. An investigation of topics such as sensory receptors, internal mechanisms, genetics, learning and habituation, social organization, and communication. Laboratory exercises involve techniques of observation and experiments in animal behavior. Two lecture and three lab or field work hours per week. Prerequisites: completion of courses in principles of ecology and genetics or permission of instructor. Fall, alternate years.
- BIOL 593:** *COMMUNITY AND ECOSYSTEMS DYNAMICS* **4 s.h.**
An in-depth approach to the structure, function, and dynamics of ecological systems at community, ecosystem, and landscape scales. Lecture and discussion will focus on current topics such as niche theory, the regulation of community structure, food webs, ecological stability, diversity, succession, and energy and material cycles. Laboratory will emphasize field-based descriptive and investigative studies of local communities and ecosystems. Three lecture and three lab hours weekly. Prerequisites: BIOL 202 or equivalent is required. A basic statistics course is highly desirable. Fall, even-numbered years.
- BIOL 594:** *POPULATION BIOLOGY* **4 s.h.**
This course deals with the empirical, experimental, and theoretical aspects of the structure, growth, and evolution of biological populations. The course will take a holistic approach to how population genetics and population ecology interact to produce observed population structure and dynamics. Three hours lecture/discussion and three lab hours weekly. Prerequisites: BIOL 202, MATH 260, or permission of the instructor. Spring, odd-numbered years.
- BIOL 597:** *EVOLUTIONARY ECOLOGY* **3 s.h.**
This course explores contemporary topics as well as landmark contributions in ecology and evolutionary biology. These topics are explored by readings of research and review papers. Three hours lecture/discussion weekly. Prerequisites: completion of courses in each of the following: principles of ecology, evolution, and genetics; or permission of instructor.
- BIOL 600:** *SPECIAL PROBLEMS IN BIOLOGY* **1-3 s.h.**
By permission.
- BIOL 700:** *RESEARCH AND THESIS* **minimum of 6 s.h.**

MASTER OF BUSINESS ADMINISTRATION

Master of Business Administration

College of Business Administration

Graduate Faculty

Professors: C. Anderson, R. Balough, S. Chen, J. Eicher, S. Ewedemi, L. Felicetti, W. Fulmer, B. Garland, M. Haggerty, P. Kim, T. Oliver, J. Pesek, C. Pineno, A. Que, W. Sanders, S. Sohng, W. Stine, T. Stuhldreher, K. Traynor, C. Yang, W. Yeaney;
Associate Professors: J. Eichlin, C. Farinacci, T. Johns, L. Quesenberry, K. Roth, L. Smith; **Assistant Professor:** G. Bish



Program Objectives

The major objective is to provide a basic core of knowledge about various theories, techniques, and practices of administering business activities and problem solving. In addition, candidates for the degree have an opportunity for in-depth study in a particular area of interest. Specific objectives are to prepare candidates for:

- positions in middle management with private and public organizations;
- teaching positions in community colleges;
- enrollment in doctoral programs in business administration.

The program is designed for candidates with undergraduate degrees in fields other than business administration as well as graduates of business degree programs. Graduate courses are offered in the evening to facilitate attendance of employed or part-time students.

The College of Business Administration at Clarion University is fully accredited by AACSB- the International Association for Management Education (formerly the American Assembly of Collegiate Schools of Business).

Admission Requirements

Division of Graduate Studies admission requirements apply with the following additions:

- Students must submit official scores on the Graduate Management Admissions Test (GMAT).
- Applicants currently employed should include references from both professors and/or employers among the three recommendations/letters of reference.

Course Requirements for Graduates

A. Foundation Courses

At least 39 credit hours of undergraduate courses or their equivalents must be completed with a grade of "C" or better to meet the undergraduate "common body of knowledge" that makes up the foundation courses requisite for the M.B.A. degree. Foundation requirements may be satisfied by course work at Clarion or other approved institutions. They may also be satisfied by the Advanced Placement-Credit By Exam option (refer to Undergraduate Catalog). Foundation requirements must be completed within the first 15 hours of graduate work. The following are the foundation courses:

*ECON 212 or 310: Microeconomics**
*ECON 211 or 311: Macroeconomics**
CIS 217: Applications of Microcomputers
ACTG 251: Financial Accounting
ACTG 252: Managerial Accounting
ECON 221: Economic and Business Statistics I
ECON 222: Economic and Business Statistics II
BSAD 240: Legal Environment I
MGMT 320: Management Theory and Practice
MKTG 360: Principles of Marketing
FIN 370: Financial Management
MATH 232: Calculus for Business
MGMT 425: Production Management

*Entering students who are deficient in the economics area of the common body of knowledge are strongly recommended to take the intermediate sequence in lieu of principles.

B. Core Courses

The following courses (24 semester hours) are required of all M.B.A. candidates:

ACTG 552: Management Accounting
ECON 510: Advanced Managerial Economics
ECON 603: Quantitative Analysis for Business Decisions
FIN 570: Managerial Finance
MKTG 560: Marketing Decision Making

MGMT 521: Organization Structure and Behavior
MGMT 626: Production/Operations Management
BSAD 690: Administration and Business Policy

Students may petition to substitute another graduate-level course for a core course. Students who have majored in the discipline covered by the M.B.A. core course may be required to substitute another graduate-level course. The criteria are that: (a) the student has taken at least 15 credits in that field and (b) the student possesses the knowledge to be gained in the core course. Course substitution requires the recommendation of the M.B.A. director in counsel with the department chair in question. Evidence such as competency testing may be required, especially for the use of non-business courses.

C. Electives

In addition to the M.B.A. core, all students will complete the balance of 33 credits of graduate course work from the following courses, subject to the offering of those courses. Graduate-level courses, other than those listed, may be used as elective credit toward the M.B.A. degree with prior approval of the M.B.A. director and the dean of the college.

ACTG 451, 452, 453, 454, 455, 461, 463, 490, 499, 554, 650, 652, 653

CIS 402, 403, 462

BSAD 601, 637, 699

ECON 410, 461, 470, 490, 570, 600, 611, 612, 699

FIN 471, 476, 480, 671, 676

MGMT 420, 423, 427, 428, 483, 485, 486, 621, 622, 625, 650

MKTG 460, 461, 465, 468, 469, 562, 604, 661

A maximum of three hours of approved 400-level courses, taken for graduate credit, may be used as electives. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit. A maximum of nine graduate credit hours toward the 33 required for the M.B.A. may be transferred from accredited graduate programs with the approval of the M.B.A. program director and the department chair of the course for which transfer credit is sought. No graduate credit is granted for correspondence courses.



All students will be expected to complete the computer foundation course in the first semester at Clarion. Students with this foundation, but from schools other than Clarion, will be expected to attend a workshop during the first semester that introduces them to the Clarion computing facilities. Fundamental computer literacy will be assumed in graduate course work.

Performance Requirements

Students who earn more than six hours of graduate credit at Clarion with a grade of "C" or earn any credits with grades below "C" and/or fall below a 3.00/4.00 graduate overall quality-point average (QPA) are automatically placed on probation. Students whose QPA in the foundation courses falls below a 3.00/4.00 are also placed on probation. Students placed on probation must achieve satisfactory academic standing within one semester of registration or be removed from the program. All prerequisite (undergraduate) courses for a given course must be completed before taking that course.

MGMT 521 and ECON 603 must be taken before completing 12 hours of graduate course work, and BSAD 690 must be taken during the last semester of graduate course work. ECON 603 and ECON 510 are prerequisites for MGMT 626. The maximum time for completion of the degree program is six calendar years from the date of first enrollment.

Specialized Options

Students pursuing the M.B.A. degree may enroll in the **PROFESSIONAL ACCOUNTANCY COURSE OF STUDY**. Clarion University undergraduate students may also apply for this course of study, and upon completion will receive both the Bachelor of Science in Business Administration and the Master of Business Administration degrees. Only students whose career aspirations require the highest discipline in accounting expertise are advised to apply for this course of study. The sequence of 164 total semester hours of course work, including 36 s.h. of graduate course work, is designed to prepare students for entry into the practice of professional accountancy as prescribed by the American Institute of Certified Public Accountants. Entrance into the Professional Accountancy course of study will normally occur upon admission to the M.B.A. Program or, for undergraduates, during the student's junior year upon formal approval of the Department of Accountancy chair. Entrance into this program for undergraduate students does not ensure admission into the M.B.A. program upon completion of the bachelor's degree. Interested students should contact the Department of Accountancy chair for details and options.

The College of Business Administration, in conjunction with the College of Arts and Sciences, offers a **LIBERAL ARTS PRE-PROFESSIONAL MBA OPTION**. Undergraduate foundation course requirements in business

administration may be taken concurrently with a liberal arts major, giving students many of the courses prerequisite to the M.B.A. Program before graduation. Undergraduates interested in this program should contact their liberal arts advisor for details and requirements.

Students wishing to pursue the **PROFESSIONAL ACCOUNTANCY** or the **LIBERAL ARTS PRE-PROFESSIONAL** options must follow the normal M.B.A. admission procedures. Admission to one of these options does not guarantee admission to, or completion of, the M.B.A. degree.

Placement

Graduate students are encouraged to use the services of the University Career Services Office. Graduates often obtain positions with banks, manufacturing concerns, accounting firms, other business and industrial organizations, hospitals, and government agencies.



Graduate Assistantships

Graduate assistantships are available to qualified M.B.A. students. Awarded competitively, they cover some or all basic tuition expenses and provide a stipend. They also may furnish additional opportunity for close work with graduate faculty on a variety of research projects. Applications for assistantships are available in the M.B.A. Office.

Advisement

All graduate students are assigned an advisor upon admission. Students must obtain the signature of their advisor when registering for courses, changing schedules, on any special requests for course substitutions, independent study, individualized instruction, internship, or special problems courses.

Physical Facilities

The College of Business Administration is housed in Dana S. Still Hall. This college maintains its own micro-computer lab with over 30 Pentium-class desktop computers that provide access to the Internet, desktop applications, and the university's central Alpha Systems. Graduate student offices in Still Hall are also PC equipped with the same access as the lab.

There is a Reading Center for business students in Still Hall, and the university library is located one block away.

Accounting Courses

ACTG 451: *ACCOUNTING PROBLEMS* **3 s.h.**

A problem-oriented study of topics most often tested on the CPA exam. Included are inventory methods, long-term contracts, partnerships, leases, consignments, installment sales, receiverships, fiduciary accounting, and government accounting. Preparations for the practice portion CPA exam are emphasized. Prerequisite: ACTG 355. Spring semester.

ACTG 452: *ADVANCED COST ACCOUNTING* **3 s.h.**

A study of advanced concepts of cost accounting as a means of providing useful quantitative information for decision-making. Topics include inventory valuation, cost allocations, joint-product and by-product costs, process costing, accounting systems, profit center costs, and segment performance measuring. Prerequisites: ACTG 352. Annually.

ACTG 453: *PROBLEMS IN FEDERAL TAXATION ACCOUNTING* **3 s.h.**

Federal income tax concepts and compliance problems of partnerships, corporations, estates, and trusts. Also a brief consideration of the concepts of social security, estate, and gift taxation. Prerequisites: ACTG 353. Spring semester.

ACTG 454: *COMPARATIVE ACCOUNTING SYSTEMS* **3 s.h.**

The major objective of the course is to help the student to develop a holistic approach to the concepts and practices for the examination and exploration of accounting systems. Specialized accounting systems will be discussed in detail dependent upon the interest and desires of students. Prerequisites: ACTG 251, 252, 350, 351, 354, CIS 223 and 301. Annually.

ACTG 455: *NOT FOR PROFIT ENTITIES* **3 s.h.**

A study of the principles and practices of budgeting and accounting for activities of entities that are operated for purposes other than making profits. Prerequisite: ACTG 351. Annually.

ACTG 461: *INTERNATIONAL ACCOUNTING* **3 s.h.**

A study of the influence of cultural values on the practice and theory of accounting and developing sensitivity to the differences and similarities of different accounting systems. Other international topics include consolidation, translation of foreign currency statements, inflation, replacement cost accounting of global oriented corporations, and harmonization of accounting standards. Prerequisites: ACTG 252. Each semester.

- ACTG 463:** *TAX PLANNING* **3 s.h.**
A survey course to acquaint the student with tax-planning techniques which can be used to accomplish an individual's financial goals. An understanding of financial position, cash flow and income, gift and estate tax matters enables the student to suggest actions that fit the individual's financial priorities. Prerequisite: ACTG 353. Annually.
- ACTG 490:** *CURRENT ACCOUNTING PRONOUNCEMENTS AND PRACTICE* **3 s.h.**
A research study of current Financial Accounting Standards Board statements of standards, interpretations, concepts, exposure drafts, and discussion memorandums. The internship experience and related research topics will be presented, discussed, and integrated with the pronouncements. Prerequisite: COOP 420: Accounting Internship. Spring Semester.
- ACTG 499:** *SPECIAL TOPICS IN ACCOUNTING* **3 s.h.**
Various current topics affecting accounting practice and theory will be presented. Different topics will be covered from year to year as subjects of importance are identified. Prerequisite: ACTG 351 or consent of the instructor. On demand.
- ACTG 552:** *MANAGEMENT ACCOUNTING* **3 s.h.**
A graduate course for non-accounting majors which deals with the application of concepts and tools of accounting analysis necessary for planning, control, and decision-making functions of national and multinational organizations. Topics include financial statement analysis and interpretation, budgeting, standards, and forecasting. Prerequisites: ACTG 251 and ACTG 252.
- ACTG 554:** *ADVANCED AUDITING* **3 s.h.**
An advanced study of current topics in auditing. The course is intended to develop more complex issues than those encountered in an introductory auditing course. Topics include current audit influences, special problems with audit reports, SEC practice, computer auditing, and related topics. Prerequisite: ACTG 354 (or its equivalent).
- ACTG 650:** *THEORY OF ACCOUNTS* **3 s.h.**
A study of past and contemporary accounting theories. The course is concerned with the historical development of accounting and its evolution to present times. Present-day accounting concepts are critically examined from the standpoint of how well they serve the needs of those who use the products of accounting. Prerequisite: ACTG 351 (or its equivalent) or permission of the instructor.
- ACTG 652:** *ADVANCED COST AND MANAGERIAL ACCOUNTING* **3 s.h.**
A study of complex problems in cost accounting. Use of cost accounting as a tool for managerial control is emphasized. Prerequisite: ACTG 352 (or its equivalent) or permission of the instructor.
- ACTG 653:** *FEDERAL TAX RESEARCH AND PRACTICE* **3 s.h.**
A study of federal tax law emphasizing the underlying philosophy of the law. Research procedures and techniques in the handling of complicated problems in tax practice and tax planning will be set forth. Prerequisite: ACTG 453 (or its equivalent) or permission of the instructor.

Business Administration Courses

- BSAD 601:** *INFORMATION SYSTEMS ANALYSIS* **3 s.h.**
A study of various types of information systems, with the primary focus being on computer-based systems for business organizations. Emphasis is on the development, management, and appraisal of information systems.
- BSAD 637:** *MULTINATIONAL BUSINESS SEMINAR* **3-6 s.h.**
This course incorporates an established program involving a consortium of American universities called the "International Business Seminar." The program involves a variety of trips to different nations for meetings with top-level executives of various organizations. The program is supplemented with a series of meetings with the instructors both before and after returning from the trips. Individual assignments are made, and a text which includes topical materials is provided. The assignments are of a graduate-level caliber, and are expected to produce presentable and/or publishable papers. Participation in seminars is expected to be at the graduate level. Should the student take this course for six credits, additional research will be required such that the student would be able to demonstrate graduate-level competency in one select area of international business. The area chosen will be mutually acceptable to both the instructor and the student, and the instructor will guide the student's research efforts. Prerequisite: MGMT 320 and MGMT 521.
- BSAD 690:** *ADMINISTRATION AND BUSINESS POLICY* **3 s.h.**
Organizational goal achievement through the interaction of administrative processes is analyzed with a concentration on technology and structure in a variety of environments. A case study approach which incorporates comparisons and contrasts between businesses of various nations. Taken last M.B.A. semester and after all foundation courses.
- BSAD 699:** *SPECIAL PROBLEMS* **1-6 s.h.**
(1-6 s.h. per enrollment; 6 s.h. maximum)
A thorough study of a business topic selected by the student from his or her area of major interest. It may take the form of research, readings, practical on-site applications, or a combination of these. Findings must be presented in a written paper which the student may be required to defend orally before a committee of graduate faculty and/or graduate students. Prerequisites: One or more graduate courses in the area from which the special project is selected, and consent of the student's advisor.

Economics Courses

- ECON 410:** *MANAGERIAL ECONOMICS* **3 s.h.**
 Use of economic analysis in the formulation of business policies. Decision theory and criteria for decision making by the firm; output and "Scale" decisions; linear programming; profits, production functions, and cost functions; competitive equilibrium (industry and firm); demand theory pricing policies, capital budgeting, and investment; uncertainty; inventory management. Prerequisites: ECON 222, 310, and ACTG 252. On demand. Note: Cannot be taken for credit after the completion of ECON 510.
- ECON 461:** *TECHNOLOGY TRANSFER AND MULTINATIONAL CORPORATIONS* **3 s.h.**
 An applied analysis of the behavior and rationale for multinational corporations, with a special emphasis on the economics of technology transfer. Topics include: theory of the firm; foreign direct investment; intellectual property rights; market imperfections; international trade; international finance; economic development; and technology. Prerequisite: ECON 361 or permission of the instructor. Biennially.
- ECON 470:** *BUSINESS CYCLES AND FORECASTING* **3 s.h.**
 Theories of business fluctuations; applications of modern income theory to business cycles; examination of business cycle indicators and forecasting techniques. Prerequisite: ECON 211 and ECON 222. Spring, annually. Note: Cannot be taken for credit after the completion of ECON 570.
- ECON 490:** *HISTORY OF ECONOMIC THOUGHT* **3 s.h.**
 Development of economic ideas from ancient times to the present. Emphasis upon the period from Adam Smith onward. Considers the economic and political environment in which ideas emerged as well as the leading economists advancing or defending the ideas. Prerequisite: ECON 211 and 212 and senior standing. Spring, annually.
- ECON 510:** *ADVANCED MANAGERIAL ECONOMICS* **3 s.h.**
 This course will focus on the development and practical application of theoretical and quantitative techniques to business decision-making, including international applications. Optimization techniques draw on the student's knowledge of economics, mathematics, and statistics through modeling and the use of computer statistical packages. Prerequisite: Microeconomics foundation course, ECON 222, MATH 232.
- ECON 570:** *ECONOMIC AND BUSINESS FORECASTING* **3 s.h.**
 An advanced study of forecasting techniques and business conditions analysis. Topics include: economic indicator analysis, classical time series components, econometric forecasting techniques, exponential smoothing models, and ARIMA models. Emphasis is placed on model development and evaluation using prewritten computer forecasting routines. Prerequisites: ECON 222 and macroeconomics foundation course.
- ECON 600:** *INDEPENDENT STUDY* **3 s.h.**
 An opportunity for the graduate student to investigate in depth a facet of economics not covered by course offerings. The topic of study and course requirements must be approved by the Department of Economics chair, and the work must be supervised by a faculty member. Prerequisites: ECON 603, ECON 510 or ECON 611, and other requirements as deemed appropriate by the faculty supervisor.
- ECON 603:** *QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS* **3 s.h.**
 Quantitative techniques and models which can be used for solving many of the problems that arise in business, including simple and multiple regression analysis, experimental design analysis of variance, nonparametric tests, time series, decision theory, and inventory models. Opportunity is provided for students to become familiar with the use of several computer statistical software packages. Applications include domestic and international situations. Prerequisites: ECON 222, MATH 232, CIS 110.
- ECON 611:** *ADVANCED MICROECONOMIC ANALYSIS FOR BUSINESS DECISIONS* **3 s.h.**
 An advanced study of the logical and mathematical development of microeconomic theories and the application of economic models to business problems. Major areas of study include demand theory, market models, welfare economics, and general equilibrium analysis. Prerequisite: Microeconomics foundation course.
- ECON 612:** *ADVANCED MACROECONOMIC ANALYSIS* **3 s.h.**
 An advanced study and analytical development of macroeconomic theory. Major areas include national income accounts, aggregate income determination models, monetary aggregates, and macro dynamics. Prerequisite: Macroeconomics foundation course.
- ECON 699:** *SPECIAL TOPICS* **3 s.h.**
 An opportunity for students to investigate specific topics or current issues on the graduate level. Prerequisites depend on the subject to be covered.

Finance Courses

- FIN 471:** *FINANCIAL PROBLEMS* **3 s.h.**
This capstone course is designed to challenge students to integrate and synthesize, through case methods, their knowledge of finance. Application of theoretical underpinning will emphasize corporate finance, but some of the cases will also deal with investments and financial institutions and markets. Prerequisite: FIN 371 or instructor's permission. Spring, annually.
- FIN 476:** *PORTFOLIO THEORY AND MANAGEMENT* **3 s.h.**
Examination of modern portfolio theory and its application to investment strategies; study of options and futures markets; investigation of market efficiency. Prerequisite: FIN 376. Spring, annually.
- FIN 480:** *MULTINATIONAL FINANCIAL MANAGEMENT* **3 s.h.**
The theory and practice of financial management in multinational firms; focuses on important differences between domestic and international financial decision-making. Prerequisite: FIN 370. Annually.
- FIN 570:** *MANAGERIAL FINANCE* **3 s.h.**
A study of financial management approaches to evaluating complex alternatives for using available resources in both a domestic and a multinational context. Prerequisites: ACTG 252, FIN 370.
- FIN 671:** *FINANCIAL THEORY AND PRACTICE* **3 s.h.**
A case-study approach to the theory and practice of corporate financial issues which must be addressed by a financial manager. Emphasis will be placed on capital budgeting decisions under varying circumstances and theoretical corporate financial concerns. Prerequisite: FIN 570.
- FIN 676:** *INVESTMENT AND MANAGEMENT* **3 s.h.**
A study of the structure and management of investment portfolios. Various types of investments are examined in terms of their risk elements and the purposes they serve.

Management Courses

- MGMT 420:** *OPERATIONS RESEARCH* **3 s.h.**
Scientific methods which provide managers with a quantitative basis for making decisions. Emphasis is placed on both the deterministic and stochastic methods, including the transportation method, linear programming, dynamic programming, PERT, inventory control, queuing theory, and Markov analysis. Prerequisite: ECON 222. Fall, annually.
- MGMT 423:** *BUSINESS AND SOCIETY* **3 s.h.**
A study of concepts of, and theories about, interrelationships between business units and society in general. The concepts and theories are then employed in the analysis of complex environmental problems encountered by business managers. Prerequisite: MGMT 320.
- MGMT 427:** *SMALL BUSINESS SEMINAR* **3 s.h.**
This course is designed for a "hands on" approach to the study of small business as it applies to the various sectors of the economy. Students will have the opportunity to gain direct exposure to small business through the development of a formal business plan for a new small business. Emphasis is placed on the entrepreneurial activities involved as they relate to this process. Prerequisite: MGMT 320. Once every three semesters.
- MGMT 428:** *ENTREPRENEURSHIP* **3 s.h.**
This course explores entrepreneurship and the entrepreneurial process associated with new venture formation. Emphasis is placed on creativity and innovation as it relates to the initiation of a new business. The course highlights the preparation involved in the formation of a new venture, developing the entrepreneurial plan, and adapting to contemporary challenges facing the entrepreneur. Prerequisite: MGMT 320. Once every three semesters.
- MGMT 483:** *WAGE AND SALARY ADMINISTRATION* **3 s.h.**
A study of the formation and administration of compensation systems as they relate to the changing nature of employee rewards and expectations. Emphasis will be given to job and performance evaluation, fringe benefits, and rewards for special groups. Prerequisite: MGMT 324. Spring, annually.
- MGMT 485:** *INDUSTRIAL RELATIONS AND PUBLIC POLICY* **3 s.h.**
An examination of industrial relations as it relates to federal, state, and local statutes and industrial policies. Specific topics covered include OSHA, EEOA, NLRA, LMRA, and LMRDA. Prerequisite: MGMT 324. Fall, annually.
- MGMT 486:** *OCCUPATIONAL SAFETY MANAGEMENT* **3 s.h.**
This course is designed to provide the student with information concerning management techniques, government regulations and safety, and health program development within organizational settings. Prerequisite: MGMT 320. Once every two years.
- MGMT 521:** *ORGANIZATION STRUCTURE AND BEHAVIOR* **3 s.h.**
A study of the ways in which organizations, groups, and/or individuals respond to managerial philosophy and practice. Included is an analysis of the influence of various environments, mores, cultures, and societies on organizations. Emphasis is placed on the functions and processes of decision-making. Prerequisites: MGMT 320.
- MGMT 621:** *HUMAN RESOURCES MANAGEMENT* **3 s.h.**
A study of human resources management issues and practices in business organizations. Topics covered include the analysis and design of jobs, staffing the organization, training, and development of employees, and the design and administration of compensation systems. Prerequisite: MGMT 320.

- MGMT 622:** *BUSINESS OPERATIONS IN A MULTI-NATIONAL ENVIRONMENT* **3 s.h.**
A study of the nature, organization, and operation of multinational firms. Selected cases of foreign operations of multinational corporations are discussed and analyzed. Prerequisite: MGMT 320.
- MGMT 625:** *LABOR ARBITRATION/NEGOTIATION* **3 s.h.**
A synthesis of industrial relations theory and practice. The union/employer relationship will be explored from the union organization drive through the continued negotiation of collective bargaining agreements, and attendant grievance arbitration procedures. Prerequisite: MGMT 320.
- MGMT 626:** *PRODUCTION/OPERATIONS MANAGEMENT* **3 s.h.**
A synthesis of concepts and techniques which relate directly to, and enhance the management of, production systems and a life cycle approach following the production system from its inception to its termination is utilized. Prerequisites: ECON 510, ECON 603.
- MGMT 650:** *TOTAL QUALITY MANAGEMENT* **3 s.h.**
An examination of Total Quality Management (TQM), including the philosophies and principles of Deming, Juran, and Crosby. The focus is on the management and continuous improvement of quality and productivity in manufacturing and service organizations. Topics include quality measurement, quality assurance, giving employees responsibility for quality, the team approach to quality, employee recognition, and various TQM tools and techniques. Prerequisite: MGMT 320. Annually.

Marketing Courses

- MKTG 460:** *SALES MANAGEMENT* **3 s.h.**
Designed to cover all aspects concerned with the management of a sales force, including the selection and testing of evaluations. E-marketing topics will be discussed. Case studies and problem-solving techniques are utilized. Prerequisite: MKTG 360. On demand.
- MKTG 461:** *MARKETING RESEARCH* **3 s.h.**
The application of scientific and statistical methods and tools to the solution of marketing and e-marketing problems are studied. Prerequisites: ECON 221, 222 and MKTG 360. Each semester.
- MKTG 465:** *MARKETING PROBLEMS* **3 s.h.**
A consideration by the case method and/or simulation gaming method of the problems facing the producer and reseller including traditional and e-marketing problems.. Prerequisites: MKTG 360, and senior standing. Each semester.
- MKTG 468:** *CONSUMER BEHAVIOR* **3 s.h.**
The study of theories, models, recent research, and research techniques in consumer motivation and decision making including traditional marketing and e-marketing issues. Prerequisites: MKTG 360 and PSY 211 or permission of the instructor. On demand.
- MKTG 469:** *INTERNATIONAL MARKETING* **3 s.h.**
An analytical approach to study marketing and e-marketing management decisions involving multinational operations. The focus of the course will be on the management of the marketing functions within the multinational corporation. Prerequisite: MKTG 360. On demand.
- MKTG 560:** *MARKETING DECISION MAKING* **3 s.h.**
The analysis of marketing concepts and problems from a managerial point of view. Emphasis is placed upon planning, organizing, and controlling of marketing and e-marketing activities and their integration with the objectives and policies of the firm. Both domestic and multinational marketing concepts are addressed in this course. Prerequisite: MKTG 360 and ECON 222.
- MKTG 562:** *CHANNELS OF DISTRIBUTION* **3 s.h.**
A study of components of a vertical marketing system and of the methods for making them effective. Also included are means of evaluating alternative marketing systems and the development of international marketing channels as well as e-marketing systems. Prerequisite: MKTG 360.
- MKTG 604:** *MARKETING RESEARCH* **3 s.h.**
Methods of solving marketing research problems, including library, survey, and experimental research methods; project design; data collection, analysis, and interpretation; presentation of marketing research reports for managerial user. Problems in international marketing research, e-marketing research, and research ethics are also included. Selection, design, and completion of a marketing-oriented research project and computer work are required. Prerequisite: ECON 603.
- MKTG 661:** *MARKETING STRATEGY* **3 s.h.**
A study of strategies for attaining a suitable "marketing mix" for various types of entities including e-marketers. Marketing knowledge from previous courses and experiences will be applied to the formation of overall programs for dealing with both international and domestic marketing problems. Prerequisite: MKTG 360.

MASTER OF SCIENCE DEGREE IN COMMUNICATION EDUCATION AND MASS MEDIA TECHNOLOGY

Master of Science Degree in Communication Education and Mass Media Technology

College of Arts and Sciences Department of Communication

Graduate Faculty

Professors: D. Siddiqui; **Associate Professors:**

S. Kuehn, P. Marini, J. Washington;

Assistant Professor: S. Hilton; **Instructor:** M. Wilson

Program Objectives

The Master of Science in Communication Education and Mass Media Technology provides an integrated program for individuals pursuing careers involving communication technology and instructional design. Our goal is to provide a thorough theoretical base, coupled with production, to enable students to design training programs using a variety of media, including multimedia, web-site production, video, and audio.

Students design, prepare, and manage educational and instructional materials, training and development materials, and promotional and public relations materials. Our state-of-the art facilities provide a multimedia production studio, a non-linear video editing suite, a digital audio production studio, and advanced television production and output capabilities.

Graduates of this program work as instructional technologists, management consultants, educational specialists, and human resource developers. The program also provides a sound foundation for doctoral and specialist programs in communication, higher education, and instructional technology.

Admission Requirements

Graduate Studies admission requirements apply with the following additions:

- All applicants must submit a statement of purpose for pursuing the Master of Science in Communication Education and Mass Media Technology.
- Admission on a provisional basis may be granted if the applicant's quality-point average (QPA) is between 2.00 and 2.75 on a 4.00 scale and a raw score of 45 or above is achieved on the Miller Analogies Test or a combined score of

1,000 is obtained on the Graduate Record Examination. Degree status may be obtained upon completion of 12 semester hours with a minimum of 3.0 average.

- Individuals with disabilities are encouraged to meet with the department chair before admission to the program.
- Non-native applicants must submit TOEFL scores. TOEFL scores of 600 or above are required for admission to the degree program.

Degree Requirements

To fulfill the degree requirements for graduation, the student must complete 36 semester hours, including required courses with a QPA of 3.00 or better on a 4.00 scale. Passing grade is "C" or above. There is also a media writing competency for which COMM 140: Writing for Media may be required if sufficient background is not obtained through previous course work or experience as demonstrated through portfolio or testing. This decision will be made in consultation with your advisor.

Transfer Credits

A maximum of nine semester hours of graduate course work may be transferred toward the degree. These hours must come from an accredited institution and must have a grade of "B" or better.



Requirements for Graduation

The following courses are required of all students graduating with a Master of Science degree in Communication Education and Mass Media Technology.

<i>COMM 545: Theory and Application of Production Planning</i>	3 s.h.
<i>COMM 548: Distance Learning: Media Strategies</i>	3 s.h.
<i>COMM 556: Training and Development Planning and Design</i>	3 s.h.
<i>COMM 559: Management of the Communication Process</i>	3 s.h.
<i>COMM 621: Research in Communication and Instructional Technology</i>	3 s.h.
<i>COMM 700: Thesis</i>	3 s.h.

Students must file for candidacy at the end of their first semester, specifying a three-member committee and an elective course schedule. At least two of the three members of the committee should be faculty from the Department of Communication. Committee members must have graduate faculty status. Students must pass a comprehensive final examination administered by their committee. Part of the comprehensive examination will be a defense of a paper, media project, or thesis.

Electives

Electives may be taken from any curriculum in the graduate catalog if approved by the student's committee. Fifteen credits must come from Communication courses with a limit of three credits at the 400-level. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit. Students enrolled in the Instructional Technology Specialist Certificate program must take nine credits from Communication courses.

Production Electives:

<i>COMM 560: Audio and Television Production</i>	3 s.h.
<i>COMM 565: Photography and Graphic Production</i>	3 s.h.
<i>COMM 572: Designing World Wide Web Training Media</i>	3 s.h.
<i>COMM 580: Applied Design and Production</i>	3 s.h.
<i>COMM 657: Advanced Applied Design and Production</i>	3 s.h.

Cognate Electives:

<i>COMM 558: Society, Law and Media Technology</i>	3 s.h.
<i>COMM 591: Independent Study</i>	1-2 s.h.
<i>COMM 692: Seminar in Communication Education and Mass Media Technology</i> ..	3 s.h.

Placement

Placement of past graduates has been excellent in teaching; business, industry, and government training and development programs; employee/corporate communication programs; instructional technology programs; and doctoral and specialist programs.

Advisement

Based on career goals of the student, an advisor is selected by the student from the graduate faculty of the department.

Advisement is at the convenience of the student and may occur at any time. Frequently the advisor will recommend the student talk with another member of the faculty who may be more closely associated with a specific problem or interest of the student.

In all cases, the responsibility of meeting the stated requirements of the master's degree lies with the student.

Graduate Assistantships

Graduate assistants are employed in the Department of Communication in such areas as television management, radio management, multimedia production, and journalism. These assistantships usually require 10 or 20 hours of work per week, for which partial or full tuition is waived and a small bi-weekly stipend is paid. Assistantships run from September to May; no student may be employed in more than one assistantship. *Awards are made as vacancies exist, and are based on the applicant's professional qualifications as shown in transcripts, resume, and portfolio of work samples. A personal interview is desirable.*

Applicants for graduate assistantships must complete the regular admission procedure, then file a letter of application with the chair of the Department of Communication. Applications for graduate assistant positions should be received no later than March 15; appointments are usually made by May 15 of each year.

Internships

The Department of Communication has maintained a cooperative arrangement with public schools, businesses, and governmental agencies for over a decade. Students may intern with such organizations in communication, education, or instructional technology. The internship is designed to provide on-the-job experience for the student to make the transition between classroom assignments and actual application of professional training. Consequently, the course should be reserved until the latter part of an individual's program.

Physical Facilities

The Department of Communication is housed in Becker Hall and has outstanding physical facilities. In addition to modern classrooms, there are:

- modern full-color television production studio, control room, and editing facilities
- computer controlled multi-image studio
- digital audio production studio
- temporal media computer lab
- multimedia production studio
- non-linear video editing suite
- interactive video technology
- 1,000-watt FM radio broadcast station

Also available to students in Becker Hall is the Computer Lab, consisting of modern mainframe, mini-and microcomputer stations.

Course Sequence

Due to the highly integrated nature of the program, it is imperative students discuss course sequencing with their advisor. The program can be completed in three semesters. However, students are encouraged to complete their requirements in four semesters and take advantage of strengthening their skills through involvement in co-curricular activities.

Instructional Technology Specialist Certificate Program

Certified Instructional Technology Specialists (ITS) help educational institutions apply technology to improve teaching and learning. The ITS program emphasizes the use of instructional technology as it relates to specific learning outcomes. Clarion University's program also addresses the dynamics of rural communities and the changing diversity of our urban areas through a multimedia approach.

Graduates of the ITS Certificate program will be able to:

- develop instructional materials
- determine appropriate uses of instructional technology in learning
- evaluate materials and technologies
- develop effective multimedia instructional materials
- develop regulation-compliant media utilization plans
- identify strategies to increase the use of instructional technology in underserved communities including specific plans to reach culturally diverse and special needs
- utilize human resource management skills



Program of Study

The ITS Certificate can be pursued alone or as part of any Clarion University master's degree program. The ITS Certificate program requires 24 semester hours. Students enrolled in both the ITS Certificate and the Master of Science in Communication Education and Mass Media Technology programs complete their course of study in 36 semester hours.

ITS candidates must satisfy preparation standards set forth by the Pennsylvania Department of Education (PDE). Students may satisfy the PDE preparation standards for Instructional Technology Specialist by completing Clarion University's ITS Certificate program.

Admission Requirements

Applicants must meet eligibility requirements for admissions to a graduate program as articulated in the Clarion University Graduate Catalog (Communication Department). Additionally, candidates who apply to the ITS Certificate program must:

- submit a professional goal statement (two pages) stating their purpose for pursuing the ITS Certificate and interest in the field;
- provide a detailed explanation of relevant experience that would lend itself to successful completion of the ITS Certificate program;
- complete the ITS Skills/Proficiency Inventory

Applicants also must have:

- experience using computers in educational settings as a means to present information or instruction
- experience using basic features of word processing programs and utilities to develop print materials
- experience in the use of the internet to transmit information and to conduct search inquiries

Degree Requirements

Required courses for ITS Certificate program (24–25 credits)

1. **COMM 545: Theory and Application of Production Planning** 3 s.h.
2. **COMM 558: Society, Law, and Media Technology** 3 s.h.
- OR**
- LS 540: Multicultural Sources and Services for Educators and Librarians** 3 s.h.
- AND**
- COMM 558: Society, Law, and Media Technology** 1 s.h.
3. **ED 578: Professional Seminar** 3 s.h.
4. **COMM/CIS 650: Advanced Technology Applications** 3 s.h.
5. **COMM/CIS 651: Networking Media Technology Centers** 3 s.h.

6. ED/CIS 649: Educational Technology

- Leadership** 3 s.h.
7. **ED 617: Advanced Educational Technology** 3 s.h.
8. **ED 620: Internet Applications for K-12 Educators** 3 s.h.

Students without teaching certification must take:

- ED 522: Analysis of Teaching** 3 s.h.
- ED 523: Curriculum Development and Evaluation** 3 s.h.

Students without technology expertise must take:

- ED 517: Educational Computer Applications** 3 s.h.

A student must maintain a quality-point average of 3.0 or a 4.0 scale. A student may incur an extra credit depending on selected courses bringing the total to 25 credits.

Communication Courses

- COMM 545: THEORY AND APPLICATION OF MEDIA PRODUCTION** 3 s.h.
Develops an understanding of the basic principles of communication models and the production process and relates them to the production of various media for educational and/or training purposes. Included are audience analyses, communication theory, development of content, treatments, and strategies, and other techniques leading to the design of multi-media productions.
- COMM 548: DISTANCE LEARNING: MEDIA STRATEGIES** 3 s.h.
This course will explore the various media strategies used to deliver distance learning. Learners will examine the various modes of delivering distance learning from printed correspondence courses to the newer media technologies. Media will be analyzed to determine the best delivery system for specific audiences and various communication/educational goals. Spring or summer, annually.
- COMM 551: PUBLIC RELATIONS MESSAGE DESIGN** 3 s.h.
Provides advanced instruction in persuasion techniques in the design of public relations. Successful case studies are analyzed in terms of persuasion techniques used. Prerequisites: COMM 312 or permission of instructor.
- COMM 556: TRAINING AND DEVELOPMENT PLANNING AND DESIGN** 3 s.h.
Investigates various theories of learning and instructional strategies used in training in corporate organizations and educational environments. The participant will identify a method appropriate to his or her content area, and plan and design an instructional system suited to adult learners in an in-service training environment.
- COMM 558: SOCIETY, LAW, AND MEDIA TECHNOLOGY** 1-3 s.h.
This course will examine the impact of media technology in society. The course will be divided into three distinct topical sessions, each bearing one credit load. Society will cover the experiences of various cultures in the selection and use of media technology. Law will cover the regulations which influence the proliferation of media technology including Pennsylvania Department of Education standards and guidelines as well as local and federal regulations and policies. Media technology will examine emerging technologies to determine their appropriateness to various educational and training environments. Students can enroll for 1-3 credits based on topical sessions scheduled. Summer, annually.
- COMM 559: MANAGEMENT OF THE COMMUNICATION PROCESS** 3 s.h.
Defines and applies the general principles of management-planning, organizing, staffing, directing, and controlling-to the design and administration of communication and education programs. This course relates behavioral variables to the understanding and motivation of employees.
- COMM 560: AUDIO AND TELEVISION PRODUCTION** 3 s.h.
Develops basic skills in audio, ENG, and television production. A variety of projects in both media concentrates on proper equipment operation and recording and editing techniques.
- COMM 565: PHOTOGRAPHY AND GRAPHICS PRODUCTION** 3 s.h.
Provides an integrated introduction into graphic and photographic production techniques. Layout, design, and composition techniques will be developed.

- COMM 572:** *DESIGNING WORLD WIDE WEB TRAINING MEDIA* **3 s.h.**
 This course will prepare students to design world wide web-based training media. Students will learn to structure web sites, layout copy, use color and text effectively, position images, and deploy sound and video on pages as necessary. On demand.
- COMM 580:** *APPLIED DESIGN AND PRODUCTION* **3 s.h.**
 Applies the processes learned in COMM 545. Students will apply concept skills and strategies in basic multimedia design and production for training or instructional units. Prerequisite: COMM 545.
- COMM 591:** *INDEPENDENT STUDY* **1-2 s.h.**
 Allows the imaginative student to structure an independent research project in the area of communication with a minimum of faculty supervision. A proposal specifying objectives, methods, and evaluation techniques must be submitted and approved by the student's advisor prior to enrolling in the course. 1 or 2 credit hours.
- COMM 621:** *RESEARCH IN COMMUNICATION AND INSTRUCTIONAL TECHNOLOGY* **3 s.h.**
 Develops competencies necessary for the quantitative research evaluation of needs and outcomes for distance education programs, corporate training programs, and the role of mass media technology in instructional communication. Topics include statistical analysis, experimental and survey research methods in instructional communication, and evaluation of mass media technology in instruction. Prerequisites: COMM 545 and 556. Annually.
- COMM/CIS 650:** *ADVANCED TECHNOLOGY APPLICATIONS* **3 s.h.**
 This course develops advanced skills to support instructional technology programs. Coursework will cover areas such as advanced microcomputer applications, internet concepts as they apply to instructional technology, and PC operating system issues related to instructional technology. The focus will be on computers and related technologies used in educational and training environments. Prerequisite: COMM 545, or permission of instructor. Summers/spring annually.
- COMM/CIS 651:** *NETWORKING MEDIA TECHNOLOGY CENTERS* **3 s.h.**
 This course will enable the student to install and configure computers and computer networks in educational/training settings. Emphasis will be placed on systems commonly found in K-12 schools. Software/hardware selection, installation and maintenance will be covered as related to technology integration. The student will identify ethical and legal procedures as well as issues related to adaptive assistive hardware/software. Prerequisite: COMM 545, or permission of instructor. Summers/spring annually.
- COMM 657:** *ADVANCED APPLIED DESIGN AND PRODUCTION* **3 s.h.**
 Incorporates advanced design and production skills. Students produce more complex training/instructional materials for multimedia projects. Prerequisites: COMM 545 and permission of instructor.
- COMM 692:** *SEMINAR IN COMMUNICATION EDUCATION AND MASS MEDIA TECHNOLOGY* **3 s.h.**
 Focuses on critical examination of issues, research, and innovations in the field of communication education and mass media technology.
- COMM 699:** *COMMUNICATION INTERNSHIP* **3-6 s.h.**
 Provides practical experience in the supervision in and operations of some aspect of a communication/instructional system program. A proposal specifying objectives, methods, and evaluation techniques must be submitted and approved by the student's advisor and the cooperating agency prior to enrolling in the course.
- COMM 700:** *THESIS* **3 s.h.**
 Requires each student to develop a project or thesis in some area of communication.



MASTER OF SCIENCE DEGREE IN COMMUNICATION SCIENCES AND DISORDERS

Master of Science Degree in Communication Sciences and Disorders

College of Education and Human Services

Graduate Faculty

Professors: J. Bauman-Waengler, D. Hetrick, C. McAleer, H. Savage; **Associate Professors:** J. Jarecki-Liu

The Communication Sciences and Disorders (CSD) Department offers a graduate program leading to a Master of Science degree in speech pathology. The graduate program is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association.

Program Objectives

The academic goals of the program are:

- To provide a quality education to a small number of master's degree students. The department has a commitment to maintain a faculty-to-student ratio of 6:1; maintain a faculty with extensive backgrounds who are actively involved in research and scholarship, but dedicated to teaching; and maintain up-to-date materials and equipment for teaching, clinical activities, and research.
- To ensure adequate student knowledge in the normal physical, biological, and psychological aspects of speech, language, and hearing.
- To introduce the student to the closely related professional areas of medicine, teaching of the deaf, psychology, and dentistry.
- To facilitate an interdisciplinary view of disorders of human communication.
- To develop self-study skills necessary to keep abreast of new scientific information.
- To offer a degree program suitable for both the student who plans for the master's degree and the student who plans to pursue doctoral study.
- To prepare students to work in diverse occupational settings including but not limited to hospitals, rehabilitation centers, private practices, public schools, etc.
- To prepare students to carry out research projects in the areas of speech, language, and audiology.

The clinical education goals of the program are:

- To prepare students to function as independent clinicians. These levels of function will exceed

or be commensurate with clinical certification guidelines suggested by the American Speech-Language-Hearing Association, guidelines for Pennsylvania state licensure in speech pathology, and standards implemented by the Pennsylvania Department of Education.

- To improve clinical competencies in the assessment and management of individuals having communication disorders.
- To prepare the student to realize the changing role of the speech-language pathologist and audiologist in our society.
- To prepare speech-language pathologists to fill diverse roles in their discipline.
- To foster attitudes conducive to high quality, ethical professional practice.
- To prepare the student to complete diagnostic evaluations testing both children and adults.
- To prepare the student to implement appropriate diagnostic procedures and to draw conclusions and make recommendations based on the results of the diagnostic session.
- To prepare the student to counsel clients regarding the results of the diagnostic evaluation. Students will be able to relay information concerning the results of the testing as well as inform the client of recommendations for further testing, referral, etc.
- To prepare the student to design and implement a program of rehabilitation for both children and adults. This will include writing lesson plans where short-term and long-term objectives are appropriately formulated.
- To prepare the graduate student to maintain accurate and appropriate records and demonstrate a knowledge that these records are confidential. They will also demonstrate a knowledge that they are accountable for the services that they provide.
- To prepare the student to demonstrate an understanding of professional, clinical, and basic research and to show that they can apply the results of such research to the clinical setting.
- To ensure adequate student knowledge of communication disorders and sciences in culturally and linguistically diverse populations.
- To ensure adequate student knowledge regarding augmentative and alternative forms of communication.



Admission Requirements

Division of Graduate Studies admission requirements apply with the following additions:

- A baccalaureate degree from an acceptably accredited college or university.
- An applicant should have achieved a 3.0 quality-point average (on a four-point scale) for the baccalaureate degree.
- Satisfactory score on Graduate Record Exam General Test.
- Writing proficiency as demonstrated by a one-page letter of intent.
- Three faculty and/or professional recommendations; recommendation forms should document applicant's potential and/or effectiveness in specialization area and/or professional performance.
- Fifteen semester hours of credit in courses related to normal development and the sciences related to the use of speech, hearing, and language; three credits in speech pathology; three credits in language disorders; six credits in audiology, including three credits in aural rehabilitation; twenty-five (25) clinical observation hours; three credits in statistics; six credits in behavioral/social sciences; three credits in biological/physical sciences; and three credits in mathematics. Students may make up undergraduate deficiencies.
- Applicants who fail to satisfy the foregoing requirements may be admitted conditionally. In such cases, the terms of the conditional admission will be specified for the individual applicant.
- International applicants: in addition to all of the above, international applicants must submit a minimum TOEFL score of 600 and a minimum TSE score of 200.

Degree Requirements

General Regulations and Procedures

Transfer of Credit. The minimum course credit requirement for the master's degree is 39 semester hours. Of this, at least 30 semester hours must be earned at Clarion University of Pennsylvania. A maximum of 30 percent of the total credits necessary for completion of the master's degree may be accepted from another accredited graduate school. The student is responsible for filing an official transcript of any work presented for transfer credit.

Advisement. Upon acceptance into the program, students will be assigned to a departmental advisor. The student and his or her advisor will plan a program of study. This plan will be filed and maintained in the student's academic file. Students must meet with their academic advisor every semester to pre-register for courses.

Grades. An average grade of "B"(3.00/4.00) is required.

Graduate Courses. Graduate courses are numbered in the 500s. Some courses open to undergraduates (400 numbers) may be taken for graduate credit by permission of the student's advisor. A maximum of six credits at the 400-level may be taken for graduate credit and applied toward a graduate degree. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit.

Specific Requirements

- The student must fulfill all general requirements for the degree and complete a minimum of 39 semester hours of credit for the degree.
- The graduate student majoring in speech-language pathology will complete a minimum of 30 credits in speech-language pathology courses, including CSD 505, CSD 520, CSD 540, CSD 589, and three credits in CSD 535.
- Students may elect to take one course outside the major providing their major and minor area requirements will have been met. A complete listing of graduate courses in communication sciences and disorders is carried in the course description section that follows.

Options. Thesis, research, and academic programs are available. The decision as to whether a given student shall follow one program or the other rests with the department, as it considers the recommendations of the advisor and the request of the student. The student will complete an approved program under one of the following options:

Thesis Option: Forty-two to forty-eight semester hours, including six credits in CSD 590. After the completion of a satisfactory thesis, the candidate will be asked to make an oral defense of this thesis before a faculty committee.

Research Option: Thirty-nine to forty-five semester hours, including three credits in CSD 590. This option does not require a thesis, but does require a research paper or project.

Academic: Forty-two to forty-eight semester hours, including an additional six credits in the major.

- Clinical proficiency must be demonstrated.
- Two externships in a clinic and/or public school are necessary to satisfactorily complete the clinic clock hours required for the degree. Students must have a cumulative quality-point average of 3.00 and must be making satisfactory progress toward the degree to be permitted to enroll in the externship program.
- Academic and clinical practicum requirements for the Certificate of Clinical Competency in Speech-Language Pathology of the American Speech-Language-Hearing Association must be fulfilled.
- Students who wish to obtain a Pennsylvania Teaching Certificate for Speech Correction must obtain a master's degree in CSD, must complete an externship in the public schools, and must complete CSD 554: Professional Practicum or have had a commensurate course. In addition, the student must pass the following tests: Praxis Series Tests, and Specialty Area Test-Teaching Speech to Students with Language Impairments. Applications for these tests can be obtained at the Office of Field Services.

Placement

The faculty and the university's Career Services assist graduates of the program in finding professional positions in public and private schools, colleges and universities, hospitals, research centers, health departments, clinical service centers, industry, or private practice. Graduates of the program have historically enjoyed excellent professional placement.

Graduate Assistantships

A number of graduate assistantships and other forms of financial aid are available. Individuals who want to be considered for financial assistance should so indicate at the time of application.

Externship

Six- and 12-credit externships are available in a wide variety of environments to augment the classroom experiences and broaden clinical experiences.

Physical Facilities

The academic component of the department is housed in the first floor of the Keeling Health Center. Facilities include classrooms, a speech science/anatomy and physiology lab, a hearing science lab, a microcomputer lab, a library which includes a large variety of videotape resources, a student study area, and departmental and faculty offices.



An independent Speech and Hearing Clinic is located on the ground floor of the Keeling Health Center and includes individual and group clinic rooms, a conference and seminar room, an audiological suite, a clinical in-

strumentation laboratory, a student study area, a reception area, videotaping facilities, and a 10-station closed circuit television system.

Communication Sciences and Disorders Courses

- CSD 422/522:** *CLINICAL EXTERNSHIP* **6 or 12 s.h.**
Supervised observation of and participation in school and/or clinic environments. Prerequisite: CSD 540.
- CSD 472:** *SEMINAR IN SPEECH SCIENCE* **3 s.h.**
This course begins with a review of the speech mechanism as a servosystem and transducer and basic knowledge of the physics of sound. The remainder of the course focuses attention and is structured on the concept that the speech mechanism is a chain of events physiologically, acoustically, and perceptually. Each link in this chain of events is studied in terms of basic knowledge, pertinent research, and each link's contribution to the speech chain as a whole. Prerequisite: CSD 456 or a basic course in phonetics and/or speech science. Each semester.
- CSD 500:** *APHASIA* **3 s.h.**
This course is a comprehensive study of the neuroanatomical implications related to acquired aphasia (dysphasia) in adulthood, although study of the symptoms and treatment of both sensory states and motor disturbances in aphasia is made. The current literature is reviewed and facilities are investigated. Opportunities are provided for the student to participate in individual and group therapy, and for visits to centers where these types of problems are diagnosed and treated. Guidance and counseling are provided to design an independent study in this area.
- CSD 505:** *ARTICULATORY AND PHONOLOGICAL DISORDERS IN CHILDREN* **3 s.h.**
Articulatory and phonological features of the American English sound system are examined in relation to other developing linguistic functions. The assessment of disordered articulatory and phonological behavior is stressed, and differential diagnosis is emphasized. Based upon several traditional and current theoretical models, possibilities for therapeutic interventions are presented.
- CSD 510:** *SEMINAR IN NEUROPATHOLOGY* **3 s.h.**
This course is a comprehensive study of pathologies of the central nervous system. Methods for identifying and treating speech, language, and communication problems associated with progressive and non-progressive neurological disorders are explored. Neuropathologies studied include the dementia, syndromes associated with right-hemisphere lesions, and deficits subsequent to closed-head injury. A unit on normal swallow and dysphagia is included in the course. Opportunity will be provided for independent investigation and clinical participation.
- CSD 515:** *MAXILLOFACIAL ANOMALIES* **3 s.h.**
This course is a comprehensive study of clinical diagnosis and treatment of patients with communicative disorders related to clefting and/or associated syndromes. Current research regarding anatomy and physiology of the palate and velopharyngeal structures for speech production is detailed. The genetics of clefting and associated syndromes is discussed. Special attention is directed to early growth and development of infants with clefts. Opportunities for observation of a craniofacial team multidisciplinary evaluations and team planning are provided in medical settings.
- CSD 520:** *LANGUAGE DISORDERS IN CHILDREN* **3 s.h.**
Models of the language function with their justifications are identified and critically analyzed. A review of normal language development is included to provide comparison with deviations. Diagnostic procedures utilized with language disorders in children are investigated; therapeutic means to influence them will be presented. Differential diagnostic specifics of certain language disorders such as those associated with deafness, autism, mental retardation, and language learning disabilities are included.
- CSD 525:** *STUTTERING* **3 s.h.**
This course emphasizes investigation of the major theories and therapies of stuttering. Theories of etiology and of development of stuttering are included. The development of an understanding of stuttering behavior and similar speech behavior is included. Management strategies and therapies are also investigated.
- CSD 530:** *VOICE* **3 s.h.**
This course includes the study of human voice and its manifestations across the life span. Students will be acquainted with new developments, issues, and trends that cover the entire spectrum of voice perception and production, including vocal development and life span changes, and the continuum of voice production from disorders through superior performance. Focus will include pathophysiology of disorders, instrumental and noninstrumental assessment, interdisciplinary team management, and treatment.

- CSD 533:** *INSTRUMENTATION AND HEARING SCIENCE* **3 s.h.**
This course deals with instruments used in a speech and hearing program and also covers basic principles of hearing science. Some information on psychoacoustics is also provided.
- CSD 534:** *OTOLARYNGOLOGY* **1 s.h.**
This course is an introduction to the profession of otolaryngology. The course is taught by a board-certified physician and offered once a year.
- CSD 535:** *AUDIOLOGY SEMINAR* **3 or 6 s.h.**
This course is divided into two three-credit seminars. The first seminar reviews anatomy and physiology of the ear and ear pathologies. Basic audiometric test procedures for clinical audiology will be studied. The second seminar deals with special audiometric testing, including site of lesion testing, an introduction to evoked potential testing and electronystagmography, and industrial audiology.
- CSD 540:** *CLINICAL PRACTICE* **3 or 6 s.h.**
This course entails practice, under supervision, in applying theory to the assessment and management of individuals from preschool through adulthood having significant disorders of speech, hearing, or language. The clinical experience is relatively independent in the assessment, organizing, and carrying out of effective plans of therapy. The student should demonstrate an interdisciplinary approach and be able to generalize on the area of the disorder treated, as well as deal appropriately with the specific clients treated.
- CSD 550:** *MOTOR SPEECH DISORDERS* **3 s.h.**
This course explores the causes, nature, and dynamics of both developmental and acquired forms of the motor speech disorders of apraxia and dysarthria. The specific nature of speech disturbances associated with lesions of the motor system and current diagnostic protocols and management strategies associated with each identified.
- CSD 554:** *PROFESSIONAL PRACTICUM* **3 s.h.**
This course explores current professional issues and trends in the practice of speech-language pathology and audiology. Topics include licensure and certification, and an emphasis is placed on the ethical/legal restrictions and obligations that influence the professional practitioner.
- CSD/SPED 575:** *AUGMENTATIVE AND ALTERNATIVE COMMUNICATION* **3 s.h.**
This course is designed to introduce the student to various augmentative/alternative communication systems prevalent in the field. Current and comprehensive information relative to type of disorder, diagnosis, and treatment will be discussed. An emphasis will be placed on the application of unique criteria in diagnostics and the administration of competent and flexible management strategies in rehabilitation.
- CSD 589:** *INTRODUCTION TO GRADUATE STUDY* **3 s.h.**
This course reviews the history and structure of the professions of speech-language pathology and audiology and their relationship to related disciplines. The design of research and professional writing style employed in the Journal of Speech and Hearing Research is emphasized.
- CSD 590:** *RESEARCH* **3 or 6 s.h.**
The student may complete a study in speech or language pathology and audiology or related areas under the supervision of a staff member. The student may select the thesis option in which six credits are required. The student may select the research option in which three or six credits culminate in a written report presented to the faculty advisor. Types of investigations which might be completed are original studies, comprehensive literature reviews, replication of studies, or completion of a portion of a larger study. Students must fill out independent study forms with their research advisor before registering for CSD 590.
- CSD 592:** *DYSPHAGIA* **3 s.h.**
This course presents an introduction to swallowing disorders including basic terminology, anatomical and physiological etiologies, and current assessment and management procedures, with special attention to laryngectomized and tracheotomized patients. The competencies, responsibilities, and roles of the speech pathologist in various clinical settings will be discussed, as well as risk factors involved in patient care. Observations and experiential learning situations will be provided.
- CSD 598:** *SPECIAL TOPICS* **1-6 s.h.**
Topics in various areas of speech pathology and audiology. The format used will be selected by the professor as most suitable to the study. The course may be offered on request of students, subject to the availability of staff. Enrollment by consent of the instructor. On demand.
- CSD 599:** *INDEPENDENT STUDIES IN COMMUNICATION SCIENCES AND DISORDERS* **1-3 s.h.**
This course is designed to provide students with an opportunity to explore an area of special need or interest in speech pathology and audiology in depth under the supervision of a member of the department. Students must develop a proposed study plan and secure the approval of the proposed director and department chair prior to registration. Repeatable for a maximum of 6 semester hours.

MASTER OF EDUCATION DEGREES IN DEPARTMENT OF EDUCATION

Elementary Education/
Reading

Master of Education Degrees in Department of Education College of Education and Human Services

Graduate Faculty

Professors: L. Brown, S. McKee, N. Sayre, J. Smith, K. Smith, S. Stalker, D. Tate; **Associate Professors:** E. Caropreso, J. Colantonio, V. Harry, M. McLaughlin; **Assistant Professors:** B. Brancato, R. DeLuca, J. Dugan, B. Maguire, J. McCullough

M.Ed. in Elementary Education

Program Objectives

The master's degree program in elementary education is accredited by the National Council for Accreditation of Teacher Education. This program encourages students to view themselves as researchers of teaching and learning and as professionals whose continued growth can best be met through inquiry, reflection, and sustained dialogues with peers. It affords practitioners the opportunity to share effective classroom practices while reading, interpreting, and analyzing current research and professional literature. *Students must choose and complete course requirements within a specified concentration area.*

Admission Requirements

Clarion University's general admission requirements apply, with the following additions:

- A baccalaureate degree from an acceptably accredited college or university.
- Undergraduate minimum quality-point average (QPA) is 3.0 or above (on a 4.0 scale).
- Satisfactory scores for the Graduate Record Exam General Test **or** the Miller Analogies Test
- Three faculty and/or professional recommendations; recommendation forms should document applicant's potential and/or effectiveness in the areas of teaching ability and/or professional performance.
- The applicant must have elementary education certification. If the applicant does not meet this requirement, the graduate faculty of the department shall determine existing deficiencies and how they must be met. Certification requirements must be met before any graduate work. Submit two copies of evidence of certification.

- Admission to provisional status may be granted at the discretion of the graduate faculty if the applicant's QPA is less than 3.0/4.0 scale. Regular status may be granted upon completion of 12 semester hours of graduate study with a minimum of 3.0/4.0 average.

Degree Requirements

	TOTAL 30 s.h.
Core Competencies	12 s.h.
Research— <i>ED 520: Introduction to Research</i> ...	3 s.h.
Pedagogy— <i>ED 522: Analysis of Teaching</i> or <i>ED 563: Reading Pedagogy</i>	3 s.h.
Curriculum— <i>ED 523: Curriculum Development and Evaluation</i>	3 s.h.
Professional Seminar— <i>ED 578: Professional Seminar</i>	3 s.h.
Concentration Areas	12 s.h.

Course selection is to be made from the following:

Curriculum and Instruction Concentration

<i>ECH 501: Early Childhood Curriculum and Instruction</i>	3 s.h.
<i>ECH 502: Early Childhood Curriculum and Assessment</i>	3 s.h.
<i>ECH 510: Leadership in Early Childhood Education and Care</i>	3 s.h.
<i>ED 403: Field Experience and Methods in Environmental Education</i>	3 s.h.
<i>ED 501: Seminar in Critical Educational Issues</i>	3 s.h.
<i>ED 506: Gender Issues in Education</i>	3 s.h.
<i>ED 509: Observations and Analysis of the Urban Classroom</i>	3 s.h.
<i>ED 510: Developmentally and Culturally Appropriate Practice: Theory, Research, and Practices</i>	3 s.h.
<i>ED 521: Instructional Leadership Skills</i>	3 s.h.
<i>ED 526: Sociology of Education</i>	3 s.h.
<i>ED 533: Recent Developments in Elementary Social Studies</i>	3 s.h.
<i>ED 534: Workshop in Education—with permission of academic advisor</i>	
<i>ED 537: Strategies and Problems of Teaching Elementary School Mathematics</i>	3 s.h.
<i>ED 568: Language and Literacy</i>	3 s.h.
<i>ED 599: Special Topics in Education—with permission of academic advisor</i>	

SCED 502: Investigative Techniques and Process Approach to Modern Science Curricula . 3 s.h.
SPED 536: Advanced Methods for Individuals with Mild/Moderate Handicaps 3 s.h.
SPED 596: Contemporary Education Practices and Directions 3 s.h.
SPED 597: Collaboration and Cooperation: Improved Teaching and Learning Outcomes 3 s.h.

Early Childhood Concentration

ECH 501: Early Childhood Curriculum and Instruction 3 s.h.
ECH 502: Early Childhood Curriculum and Assessment 3 s.h.
ECH 505: The Healthy Infant, Toddler, and Young Child 3 s.h.
ECH 510: Leadership in Early Childhood Education and Care 3 s.h.

Literacy Concentration

ED 510: Developmentally and Culturally Appropriate Practice: Theory, Research, and Practices 3 s.h.
ED 534: Workshop in Education - with permission of academic advisor
ED 546: Reading and Language Arts in Early Childhood 3 s.h.
ED 560: Defining the Literary Process 3 s.h.
ED 563: Reading Pedagogy 3 s.h.
ED 568: Language and Literacy 3 s.h.

ED 575: Seminar in Children's Literature ... 3 s.h.
ED 599: Special Topics in Education - with permission of academic advisor
LS 540: Multicultural Library Sources and Services 3 s.h.
LS 551: Storytelling 3 s.h.
LS 555: History of Children's Literature 3 s.h.
LS 577: Libraries, Literature, and the Child 3 s.h.
LS 583: Libraries, Literature, and Young Adults 3 s.h.
SPED 580: Special Reading Instruction 3 s.h.

Science Concentration

ED 403: Field Experience and Methods in Environmental Education 3 s.h.
SCED 502: Investigative Techniques and Process Approach to Modern Science Curricula 3 s.h.
SCED 503: Special Topics in Science Education - with permission of academic advisor
SCED 505: Investigation of the Life Sciences 3 s.h.
SCED 538: Science Curriculum 3 s.h.
SCED 570: Local School Curriculum Development in Science 3 s.h.
SCED 574: Science and Software for Elementary Teachers 3 s.h.
SCED 576: Science, Technology, and Society: Topics for Teachers 3 s.h.





Technology Concentration

ED 517: Educational Computer

Applications 3 s.h.

ED 534: Workshop in Education - with permission of academic advisor

ED 599: Special Topics in Education - with permission of academic advisor

ED 617: Advanced Educational

Technology 3 s.h.

ED 620: Internet Applications for K-12

Educators 3 s.h.

COMM 545: Theory and Application of

Production Planning 3 s.h.

COMM 548: Distance Learning: Media

Strategies 3 s.h.

COMM 556: Training and Development

Planning and Design 3 s.h.

COMM 580: Advanced Applied Design

and Production 3 s.h.

Electives 6 s.h.

Electives can be from any of the concentration areas. To be selected from appropriate 400- or 500-level courses as approved by the advisor. A maximum of three credits of 400-level courses approved for graduate credit may be counted toward the degree. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit. A maximum of 3-6 thesis credits may be substituted as electives.

Written Comprehensive Exam required.

Graduation Requirements

Students must complete 30 credit hours of required and advisor approved elective courses with a cumulative grade-point average of 3.00/4.00. Additionally, students are required to complete a written comprehensive exam representing the following core competencies: research, pedagogy, and curriculum. In addition, in relation to the core competencies, content from the student's area of specialization will be incorporated within these areas.

M.Ed. in Reading

Program Objectives

The master's degree program in reading is accredited by the National Council for Accreditation of Teacher Education. This program encourages students to view themselves as researchers of teaching and learning and as professionals whose continued growth can best be met through inquiry, reflection, and sustained dialogues with peers. It affords practitioners the opportunity to share effective classroom practices while reading, interpreting, and analyzing current research and professional literature.

Admission Requirements for M. Ed. in Reading or Reading Specialist Certification

Clarion University's general admission requirements apply, with the following additions:

- A baccalaureate degree from an acceptably accredited college or university.
- Undergraduate minimum quality-point average is 3.0 or above (on a 4.0 scale).
- Satisfactory scores for the Graduate Record Exam General Test **or** the Miller Analogies Test
- Three faculty and/or professional recommendations; recommendation forms should document applicant's potential and/or effectiveness in the areas of teaching ability and/or professional performance.
- The applicant must have educational certification and have successfully completed a course in reading/language arts and children's literature.
- Admission to provisional status may be granted at the discretion of the graduate faculty if the applicant's QPA is less than 3.0/4.0 scale. Regular status may be granted upon completion of 12 semester hours of graduate study with a minimum of 3.00/4.00 average.

Degree Requirements

	TOTAL 36 s.h.
Core Competencies	12 s.h.
Research— <i>ED 520: Introduction to Research</i>	3 s.h.
Pedagogy— <i>ED 522: Analysis of Teaching</i> or <i>ED 563: Reading Pedagogy</i>	3 s.h.
Curriculum— <i>ED 523: Curriculum Development</i> and <i>Evaluation</i>	3 s.h.
Professional Seminar— <i>ED 578: Professional</i> <i>Seminar</i>	3 s.h.
Specialization Courses	21 s.h.
<i>ED 560: Defining the Literacy Process</i>	3 s.h.
<i>ED 568: Language and Literacy</i>	3 s.h.
<i>ED 569: Assessment of Literacy</i>	3 s.h.
<i>ED 570: Practicum I: Analysis</i>	3 s.h.
<i>ED 571: Practicum II: Instruction</i>	3 s.h.
<i>ED 574: Reading Program Organization,</i> <i>Administration, and Supervision</i>	3 s.h.
<i>SPED 580: Special Reading Instruction</i>	3 s.h.
Electives	3 s.h.

To be selected from education or content area courses as approved by the advisor. Thesis credits may be substituted as electives.

Reading Specialist Test (NTE) required.
Written Comprehensive Exam required.

Graduation Requirements

Students must complete 36 credit hours of required and advisor approved elective courses with a cumulative grade-point average of 3.00/4.00. Additionally, students are required to pass the Reading Specialist Test (NTE) and a written comprehensive examination representing the following core competencies: research, pedagogy, and curriculum. Also, in relation to the core competencies, content from the student's area of specialization will be incorporated within these areas.

Reading Specialist Certification

Satisfactory completion of the M.Ed. in reading meets the requirements for reading specialist certification. Students desiring reading specialist certification without the degree must complete the following sequence of courses:

Reading Specialist Certification	27 s.h.
<i>ED 520: Introduction to Research</i>	3 s.h.
<i>ED 560: Defining the Literacy Process</i>	3 s.h.
<i>ED 563: Reading Pedagogy</i>	3 s.h.
<i>ED 568: Language and Literacy</i>	3 s.h.
<i>ED 569: Assessment of Literacy</i>	3 s.h.



<i>ED 570: Practicum I: Analysis</i>	3 s.h.
<i>ED 571: Practicum II: Instruction</i>	3 s.h.
<i>ED 574: Reading Program Organization,</i> <i>Administration, and Supervision</i>	3 s.h.
<i>SPED 580: Special Reading Instruction</i>	3 s.h.

Reading Specialist Test (NTE) required.

Placement

Typically, graduate program enrollees are already involved in professional careers that are being enhanced by the graduate studies. For those people who are without career placement, the faculty and the university Career Services can provide assistance in seeking appropriate employment. Students should register with Career Services before graduation.

Graduate Assistantships

A limited number of graduate assistantships are granted for 10 and/or 20 hours of departmental service per week in exchange for a waiver of tuition and a stipend. Applications are available in the Graduate Studies office and should be submitted with the application for admission to graduate study.

Advisement

Upon acceptance into the graduate program, students will be assigned a department advisor who is qualified to assist the student in his or her specific career goals. The responsibility for meeting all stated requirements for the master's degree, however, is with the student.

Education Courses

- ECH 401:** *CREATIVE RESPONSE TO CONFLICT* **3 s.h.**
A study of the current research in the development of a classroom environment which fosters cooperation, communication, affirmation, and problem-solving for children as well as for teachers, staff, instructional teams, parents, support personnel, and other adults. Emphasis on human capabilities for resolving conflicts at various life stages and situations. Examination of a range of discipline models as their implementation relates to the classroom environment. (This course is designed to be taken in conjunction with student teaching in the undergraduate program, or as an elective in the master's program.) Prerequisite: ED 121. Each semester.
- ECH 420:** *ISSUES AND ADVOCACY IN EARLY CHILDHOOD EDUCATION* **3 s.h.**
The course examines incidental learning gained by young children through their interactions with the people and products of their society's major institutions. It asks such questions as these: How do children learn as incidental by-products of these interactions; how can teachers, for example, plan encounters (with people, materials, and environments) so that the encounters contribute to children's learning goals rather than subvert them. Prerequisite: ED 121. Each semester.
- ECH 501:** *EARLY CHILDHOOD CURRICULUM AND INSTRUCTION* **3 s.h.**
Early Childhood Curriculum and Instruction focuses on developmentally appropriate curriculum design and implementation for infants, toddlers, and young children. Emphasis will be given to teaching to enhance development and learning, constructing appropriate curriculum, creating a caring community of learners, and establishing reciprocal relationships with families. Summer, on demand.
- ECH 502:** *EARLY CHILDHOOD CURRICULUM AND ASSESSMENT* **3 s.h.**
Early Childhood Curriculum and Assessment will focus on the assessment of individual infants, toddlers, and young children's development and learning as an essential component of planning and implementing appropriate curriculum. The importance of the learning community and family relationships to appropriate assessment will be emphasized. Action research will be conducted utilizing developmentally appropriate assessment practices. Prerequisite: ECH 501. Summer, on demand.
- ECH 505:** *THE HEALTHY INFANT, TODDLER, AND YOUNG CHILD* **3 s.h.**
Exploration of the factors that effect and support the development of a healthy lifestyle in infants, toddlers, and young children. Knowledge and skills will be developed in understanding and appreciating foundations and development of movement, health and safety issues, programmatic development, and building partnerships. Summer, on demand.
- ECH 510:** *LEADERSHIP IN EARLY CHILDHOOD EDUCATION AND CARE* **3 s.h.**
Leadership in Early Childhood Education and Care will explore and develop the key components in the design of a quality early childhood program and in the development of visionary leadership skills. Participants will be guided through the areas of need assessment, licensing and accreditation procedures, financial matters, curriculum, environment, policies, management skills, community support, and staff development and mentoring. Summer, on demand.
- ED 403:** *FIELD EXPERIENCE AND METHODS IN ENVIRONMENTAL EDUCATION* **3 s.h.**
This course focuses on methods used to teach environmental knowledge, concepts, and concerns, including the history and research in environmental education. The relationship of all curriculum areas to environmental education is examined and practiced. The course may be taken for graduate credit with the approval of the Education Department chair and the instructor. Offered for two weeks at a time between the end of the Spring Semester and the beginning of regular summer school only. McKeever Center in Sandy Lake, PA, will be utilized for presentation of this course.
- ED 414:** *VOLUNTEERS FOR LITERACY* **3 s.h.**
This course enables student volunteers to teach in literacy programs aimed at adult and secondary school learners in different settings. Basic methods for instruction in vocabulary, comprehension, study skills, and writing are integrated with the aim of fostering an appreciation for reading.
- ED 501:** *SEMINAR IN CRITICAL EDUCATIONAL ISSUES* **3 s.h.**
This course examines the current critical educational issues with special emphasis on school funding, legal issues, gender equity, curriculum and cultural issues, and school reform.
- ED 506:** *GENDER ISSUES IN EDUCATION* **3 s.h.**
This course examines the ways in which schools perpetuate gender bias and how educational institutions, as a reflection of the patriarchal society in which they exist, provide different experiences and outcomes for female and male students and teachers. Prerequisite: ED 110 or WS 100 or consent of instructor.
- ED 509:** *OBSERVATIONS AND ANALYSIS OF THE URBAN CLASSROOM* **3 s.h.**
This course provides opportunities for pre-service teachers, both elementary and secondary education majors, and both undergraduate and graduate students, to observe and participate in urban classrooms. Students travel in university vehicles to visit schools in major urban areas and spend a minimum of five consecutive days participating in urban classrooms. Prerequisite: junior-level standing or consent of instructor. Offered each Summer pre-session.
- ED 510:** *DEVELOPMENTALLY AND CULTURALLY APPROPRIATE PRACTICE: THEORY, RESEARCH, AND PRACTICES* **3 s.h.**
Developmentally and Culturally Appropriate Practice (DCAP) is culturally congruent pedagogy as a fundamental framework for early childhood education. DCAP emphasizes teachers' multiple/multi-ethnic perspectives in learning and teaching. It promotes culturally congruent practice for individual learners. Students enrolled in the course will have practically oriented knowledge and skills for DCAP by studying the theory and practices from various educators. It will lead them to create their own instructional approaches for DCAP. In the course, students will learn: (1) Developmentally Appropriate Practice (DAP), critiques of DAP and changes from DAP to DCAP; (2) current issues and trends on DCAP in education; (3) teacher preparation for DCAP; and (4) teachers' critical creativity in developing an integrated DCAP. Prerequisite: ED 110 or ED 121.

- ED 517:** *EDUCATIONAL COMPUTER APPLICATIONS* **3 s.h.**
 This course is designed to provide in-service educators (K-12) who have had little or no computer experience with the knowledge, skills, and attitudes necessary to use microcomputers as instructional tools in their classrooms. While acquiring computer skills, students will explore, use, and demonstrate competence in each of the following areas: word processing, databases, spreadsheets, graphics, multimedia, instructional design, telecommunications, and major issues associated with the use of technology in education. This course will provide in-service teachers with the knowledge base to make appropriate decisions regarding the use of technology in their respective classrooms. Not available to students who have taken ED 217 since summer 1994.
- ED 520:** *INTRODUCTION TO RESEARCH* **3 s.h.**
 This seminar course covers the selection, investigation, and writing of a research topic. Students are introduced to the planning of research projects, major methods of obtaining data, descriptive statistics, statistical inferences, methods of analysis and critical evaluation of published research, and the preparation of written reports. Proposed research problems and procedures are prepared for discussion and critical analysis.
- ED 521:** *INSTRUCTIONAL LEADERSHIP SKILLS* **3 s.h.**
 This course involves a survey of various theories, models, and styles of leadership, followed by the application of leadership skills in teacher-pupil and teacher-colleague relationships.
- ED 522:** *ANALYSIS OF TEACHING* **3 s.h.**
 This course presents an analysis of various teaching models and instructional designs. Videotaped lessons and clinical/field experiences applying course competencies will be critiqued by faculty and peers.
- ED 523:** *CURRICULUM DEVELOPMENT AND EVALUATION* **3 s.h.**
 This course will focus on the processes of developing and evaluating school curriculum K-12. Practical application experiences with curriculum models and management systems will be included.
- ED 526:** *SOCIOLOGY OF EDUCATION* **3 s.h.**
 This course is an analysis of the public school as an institution in modern societies and its operation in complex social structures. The course draws upon the science of sociology and other social fields to explain the operation of the school as one of the social systems which operate to influence the development of people in becoming efficient and cooperative members of society.
- ED 533:** *RECENT DEVELOPMENTS IN ELEMENTARY SOCIAL STUDIES* **3 s.h.**
 Students explore recent trends in promoting learning in the social studies as well as study current problems involved. Social forces at work today and their effect on curriculum development are considered.
- ED 534:** *WORKSHOP IN EDUCATION* **3 s.h.**
 The workshop provides opportunities for in-service teachers to encounter new ideas, knowledge, and methods in meeting problems in today's schools. Prerequisite: Teaching experience in the elementary or secondary schools.
- ED 537:** *STRATEGIES AND PROBLEMS OF TEACHING ELEMENTARY SCHOOL MATHEMATICS* **3 s.h.**
 This course deals with recent trends and methods of teaching mathematical concepts and skills appropriate to the elementary grade level. Particular attention is given to diagnostic procedures and to a "hands-on" laboratory approach. Classes are conducted in a well-equipped elementary mathematics laboratory. Recent research which applies to the teaching and learning of mathematical skills and concepts is considered.
- ED 538:** *GUIDANCE OF ELEMENTARY SCHOOL CHILDREN* **3 s.h.**
 This course addresses guidance problems arising in the elementary school and principles and techniques applicable to their solution, and the role of the classroom teacher in providing services to pupils and parents are studied.
- ED 560:** *DEFINING THE LITERACY PROCESS* **3 s.h.**
 Students will define and investigate various literacy models for the purpose of creating their own philosophy of best practice based on inquiry and reflection. Investigating current research, students will study how the reader transacts developmentally with the language of the text in a particular context and how the reader is influenced by various social factors. Prerequisite: teaching certification. Fall, annually.
- ED 563:** *READING PEDAGOGY* **3 s.h.**
 Students will define and investigate reading as related to the individual learner. Study is made of the current research into sequential and systematic reading development and the application of multi-dimensional techniques, strategies, and materials in the teaching of reading K-12 for both narrative and expository structures. Prerequisite: teaching certification. Spring, annually.
- ED 565:** *READING AND LANGUAGE ARTS IN EARLY CHILDHOOD* **3 s.h.**
 Study and observation of the child's early reading behavior during early childhood and observation of other aspects of language arts; exercises for listening experiences and developing writing skills; assessment of some of the causes of difficulties in learning to read and to use language effectively
- ED 567:** *SECONDARY, COLLEGE, AND ADULT READING INSTRUCTION* **3 s.h.**
 Survey of the reading programs and principles at the secondary and post-secondary levels; study of developmental characteristics, identification and assessment of learners' needs; examination of materials and strategies for various instructional settings and populations. Prerequisite: ED 560 or ED 563.
- ED 568:** *LANGUAGE AND LITERACY* **3 s.h.**
 This course is a study of literacy acquisition which includes consideration of developmental and sociocultural factors. The course examines instructional practices which utilize children's literature in teaching the language arts. Writing is emphasized. Prerequisite: graduate or undergraduate course in children's literature. Fall, annually.

- ED 569:** *ASSESSMENT OF LITERACY* **3 s.h.**
Provides an in-depth analysis of assessment strategies and techniques in the field of literacy. Features of this course include evaluating, implementing, and analyzing data gathered from formal and informal assessment approaches for the purpose of planning instruction. Introduction to literacy profile. Prerequisites: ED 560 and ED 563. Spring, annually.
- ED 570:** *PRACTICUM I: ANALYSIS* **3 s.h.**
The investigation of an individual's background to determine possible casual factors for underachievement in reading through (1) the selection and administration of appropriate diagnostic instruments, and (2) a sensitive interpretation of the cumulative results. Prerequisite: ED 569 and permission of the instructor. Course must be taken concurrently with ED 571. Summer, annually.
- ED 571:** *PRACTICUM II: INSTRUCTION* **3 s.h.**
The emphasis in this course is the development of competency in the instructional process of addressing reading problems. The work includes (1) learning the techniques used for corrective instruction, (2) learning how to teach individuals strategies which will enable them to be readers, (3) developing expertise in using materials related to the immediate needs of individuals, and (4) preparing a literacy profile which suggests to schools and other agencies procedures to use for a student's academic progress. Prerequisites: ED 568, ED 569, and permission of the instructor. Course must be taken concurrently with ED 570. Summer, annually.
- ED 574:** *READING PROGRAM ORGANIZATION, ADMINISTRATION, AND SUPERVISION* **3 s.h.**
The organization, administration, and supervision of reading programs from kindergarten through high school. Particular emphasis is given to the functions of a reading specialist and development of a curriculum guide for reading, organizational patterns in reading programs, and procedures for instituting and operating in-service reading education programs. Prerequisites: ED 560 and ED 563. Fall, annually.
- ED 575:** *SEMINAR IN CHILDREN'S LITERATURE* **3 s.h.**
This seminar is an intensive study of various genres of children's literature, with emphasis upon correlating into study units books that appeal to the interests of boys and girls. A study of storytelling techniques and other literature sharing methods are included. Prerequisite: ELED 331 or LS 358.
- ED 576:** *ADVANCED SEMINAR IN READING AND LITERACY* **3 s.h.**
The study and evaluation of research and current reports on reading education issues. Prerequisite: ED 560.
- ED 578:** *PROFESSIONAL SEMINAR* **3 s.h.**
This course is intended to be the capstone course for all graduate students in the Education Department graduate programs and the Instructional Technology Specialist Certification Program. Students will focus on a classroom-based action research project which will serve as an integrating element for knowledge and experiences acquired during the graduate program. Students will recognize the integrity of classroom research and demonstrate proficiency in using and assisting classroom teachers in the process of collecting data, generating hypotheses, and implementing instructional changes grounded in inquiry and reflection. The project will synthesize course readings, discussions, group activities, applications, and observations. It will afford students the opportunity to share effective classroom practices and will require studies of and experiences in interpreting and analyzing pertinent research to promote professional growth. Students will be encouraged to view themselves as researchers of teaching and learning and as professionals whose continued growth can best be met through inquiry, reflection and sustained dialogue with peers. Prerequisite: ED 520 or permission of Graduate Committee.
- ED 599:** *SPECIAL TOPICS IN EDUCATION* **1-3 s.h.**
Examines current topics and issues in education. Topics, which will be announced in advance, will focus on the needs and interests of in-service educators.
- ED 600:** *RESEARCH* **3-6 s.h.**
- ED 617:** *ADVANCED EDUCATIONAL TECHNOLOGY* **3 s.h.**
This course is an advanced course for graduate students who have a background in computers or who have taken ED 217 or ED 517 at Clarion University. The focus of this course is the development of knowledge and skills in the following topics: hardware/software maintenance; instructional design; educational electronic networking; sophisticated applications of integrated software; and educational applications of multimedia, including interactive video CD-ROM, sound, text, and graphics. This course will focus on preparing teachers to make appropriate decisions regarding the use of technology in their classrooms/schools. Admission by permission of instructor. On demand.
- ED 620:** *INTERNET APPLICATIONS FOR K-12 EDUCATORS* **3 s.h.**
This three-credit hands-on computer course is designed to introduce K-12 educators to the Internet and assist them in using this multi-faceted resource as an effective teaching tool in the classroom. Participants will be introduced to the history, structure, and overall capabilities of the Internet, including Electronic Mail, Telnet, File Transfer Protocol (FTP), and the World Wide Web. Within this framework, students will design their own web pages which will include instructional links appropriate to their discipline. In addition, students will demonstrate how to integrate Internet information with current curricula in order to present effective instruction. Summer, on demand.
- ED/CIS 649:** *EDUCATIONAL TECHNOLOGY LEADERSHIP* **3 s.h.**
This course involves a survey of various theories, models, and styles of leadership, followed by the application of leadership skills in teacher-pupil, teacher-colleague, teacher-administrator relationships and how those relationships are affected by the use of technology in schools and how technology, in turn, impacts these roles. Summer, annually.
- ED 700:** *THESIS* **3-6 s.h.**

MASTER OF ARTS IN ENGLISH

Master of Arts in English

College of Arts and Sciences

Graduate Faculty

Professors: L. Dennis, D. Fink, K. Graham, R. Leary, D. Sheraw, D. Wilson, G. Xu; **Associate Professors:** J. Bodzioc, C. Ferry, J. Huber, H. Luthin, E. MacDaniel, K. Smith, K. Stemmler, P. Terman; **Assistant Professors:** T. Johnson, J. Knepper, D. Sarbin, K. Welsch

Program Objectives

The Master of Arts program in English provides students with a broad background in the core areas of English studies and an opportunity to examine areas of particular interest in more depth. The required courses ensure that students will practice several modes of thinking and be engaged in significant encounters with literature, critical theory, composition theory and practice, and linguistics. Elective courses allow students to pursue some of their own interests, while the seminar papers the students write in preparation for their comprehensive exam enable them to engage in independent research on topics of their own choosing. Throughout the process, students are able to draw on the guidance and expertise of the graduate faculty to assist them in course work and in independent research.

Our program—which is structured, yet flexible enough to accommodate a wide range of needs and interests—is particularly well suited for applicants seeking to:

- obtain the M.A. as their terminal degree
- prepare for doctoral programs elsewhere
- develop professional writing and consulting skills
- enhance or develop teaching credentials for certification
- satisfy a personal love or interest in the field of English

Admission Requirements

Division of Graduate Studies admission requirements apply with the following addition:

- Applicants must submit their Graduate Record Exam General Test scores.

Requirements for Graduation

To complete the M.A. program in English, the student must:

- Complete 31 credit hours, at least 25 of which must be earned from 500-level courses. Sixteen

of the 31 credit hours constitute required course work, while 15 elective credits allow for greater flexibility in appealing to the goals and interests of the student.

Distribution of Required Courses

<i>ENG 501: Introduction to Graduate Studies in English</i>	<i>1 s.h.</i>
<i>ENG 509: Seminar in Literary Theory</i>	<i>3 s.h.</i>
<i>ENG 510: Seminar in English Literature ..</i>	<i>3 s.h.</i>
<i>ENG 511: Seminar in American Literature</i>	<i>3 s.h.</i>
<i>ENG 520: Seminar in Writing: Theory and Research</i>	<i>3 s.h.</i>
<i>ENG 530: Seminar in Linguistics</i>	<i>3 s.h.</i>

Elective Courses

Students may take as electives any of the 500-level courses offered in the department, including:

<i>ENG 510: Seminar in English Literature*</i>
<i>ENG 511: Seminar in American Literature*</i>
<i>ENG 512: Seminar in Literary Studies*</i>
<i>ENG 515: Seminar in Film</i>
<i>ENG 521: Seminar in Composition Studies</i>
<i>ENG 522: Practicum in College Teaching</i>
<i>ENG 523: Internship in Writing</i>
<i>ENG 531: Seminar in the History of the English Language</i>
<i>ENG 534: Workshops in English</i>
<i>ENG 540: Independent Study</i>

***These courses in particular may be repeated as the content changes.**

In addition, as many as two of the following 400-level courses may be taken as graduate electives: ENG 401, ENG 412, ENG 413, ENG 457, ENG 458, ENG 459, and ENG 482. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit.

As explained more fully in “Guidelines for Qualifying Papers and the Qualifying Exam” (available from the Director of the Graduate English Program), students are required to:

- Complete three proposals for seminar papers. The graduate director then assigns these proposals to a proposal committee that may accept, reject, or make recommendations for changes to any or all of the proposals. The student is then given the opportunity, if required, to revise and resubmit proposals for approval.

- Complete three seminar papers on topics of the student's own choosing. While at least two of these papers must be based on work done in graduate courses at Clarion, the student is expected to research and examine the issues more fully than in the class essays. Each of these papers is written under the direction of a different faculty member who must approve the paper before the student is allowed to take the comprehensive exam. Because these papers will represent the culmination of the student's work in the M.A. program, it is expected that they approach or attain the standards of professional papers. A creative written work or portfolio of shorter creative pieces may be submitted as one of these papers.
- Successfully complete the oral comprehensive examination. The examination is based upon the seminar papers and their critical contexts. The examiners will consist of the three faculty members to whom the seminar papers were submitted. The student is responsible for and may be questioned on the paper and the research involved in the writing of the paper.

Graduate Assistantships

The English graduate program offers a number of graduate assistant positions in The Writing Center, which generally provide stipends and tuition waivers to recipients. Working closely with faculty, undergraduates, and fellow graduate students, graduate assistants gain invaluable hands-on experience in the business of teaching and thinking about writing, including opportunities to:

- work one-on-one with student writers
- assist with first-year writing classes
- gain practical experience in a computer lab setting
- develop professional expertise in writing and consulting

Assistants are also eligible to take part in our mentoring program, which affords students the opportunity to work directly with a composition instructor assisting in small group activity and teaching classes under the supervision of the instructor.

Applicants applying for a graduate assistantship in the English Department must include an additional letter to the department expressing their interest in an assistantship and outlining their qualifications. Applicants also are advised to request that at least one of the people who writes a letter of recommendation speak to the applicant's ability to tutor writing in a college setting.

English Courses

- ENG 401:** *CHAUCEUR* 3 s.h.
Studies in Middle English of Chaucer's early poems, Troilus and Criseyde, and the Canterbury Tales. Fall, even-numbered years.
- ENG 412:** *SHAKESPEARE: COMEDIES AND HISTORIES* 3 s.h.
Provides study and discussion of problems of style, characterization, and motivation in Shakespeare's experimental and maturing comedies, chronicle and Roman plays, and tragedies. Plays to be selected from the first two periods of Shakespeare's creative productions. Fall, annually.
- ENG 413:** *SHAKESPEARE: TRAGEDIES AND ROMANCES* 3 s.h.
Provides study and discussion of problems of style, characterization, and motivation in Shakespeare's mature comedies, Roman plays, tragedies, and romances. Plays to be selected from the last two periods of Shakespeare's creative production. Spring, annually.
- ENG 457:** *INTRODUCTION TO LINGUISTICS* 3 s.h.
Presents key concepts and basic analytical procedures common to many contemporary linguistic theories. Areas covered in detail include phonetics and phonology, morphology, and syntax. Attention is paid to the integration of these subsystems in the overall design of a generative grammar. Prerequisite: ENG 262. Fall, annually.
- ENG 458:** *HISTORY OF THE ENGLISH LANGUAGE* 3 s.h.
Provides a study of the history of the language, including its origins and changes in structure, usage, pronunciation, spelling, vocabulary, and meaning. Intensive readings in Old and Middle English. Spring, even-numbered years.
- ENG 459:** *LANGUAGE ACQUISITION ACROSS CULTURES* 3 s.h.
Introduces current research in first and second language acquisition with an emphasis on the preparation of classroom teachers and other professionals to work with children/adults coming from homes in which languages other than English are spoken. Prerequisite: ENG 262 recommended but not required.
- ENG 482:** *COMPOSITION THEORY AND PRACTICE* 3 s.h.
Provides a systematic study of theory, and practice in the teaching of composition, conducted through workshop methods. The course requires extensive writing and a major written project. Prerequisites: secondary education majors in English must have completed ENG 111, 200, or 301 and have taken or be taking their methods course; others by permission of the instructor. Fall, annually.

- ENG 501:** *INTRODUCTION TO ENGLISH STUDIES* **1 s.h.**
 An introduction to the strategies of graduate and professional discourse in English studies. The course also includes an introduction to bibliographic and library resources in the field. One hour weekly, in the first semester of graduate work, by arrangement with the director of graduate studies.
- ENG 509:** *SEMINAR IN LITERARY THEORY* **3 s.h.**
 A seminar on general and/or selected theoretical issues implicit in the reading of literary texts. Depending upon the instructor, the course may cover broad matters of interpretation (authorial intention, the reader's share, intertextuality), focus on more specific theories of reading (reader-response, phenomenology, post-structuralism), or consider the conceptual foundations of certain literary structures (narrative, genre, tropes).
- ENG 510:** *SEMINAR IN ENGLISH LITERATURE* **3 s.h.**
 This course provides students with critical strategies to apply to specific periods, figures, or problems in English literature. This course may be taken more than once if the course content is different.
- ENG 511:** *SEMINAR IN AMERICAN LITERATURE* **3 s.h.**
 This course provides students with critical strategies to apply to specific periods, figures, or problems in American literature. This course may be taken more than once if the course content is different.
- ENG 512:** *SEMINAR IN LITERARY STUDIES* **3 s.h.**
 This seminar encompasses topics that combine English, American, and other literatures in a critical discourse. Topics may include ethnic, non-canonical, and comparative literature. Studies in the novel, drama, and the satire may be subjects of this seminar. This course may be taken more than once if the course content is different.
- ENG 515:** *SEMINAR IN FILM* **3 s.h.**
 Film language views movies as a discourse medium, using a variety of formal structures: montage, mise-en-scene, and narrative and non-narrative patterns. These grammatical and rhetorical elements will be studied as they structure representative movie texts. Specific theories of film will also be reviewed.
- ENG 520:** *SEMINAR IN WRITING: THEORY AND RESEARCH* **3 s.h.**
 Seminar in Writing explores important movements in rhetorical theory and recent trends in research as conceptually applied to writing, education, and related fields. Students study major theories about the nature of writing and scientific inquiry into it.
- ENG 521:** *SEMINAR IN COMPOSITION STUDIES* **3 s.h.**
 Seminar in Composition Studies, which builds on the classroom practices presented in ENG 520, examines recent issues and innovations in writing with emphasis on the subspecialties of writing. Topics may include: the composing process, computers in composition, evaluation, writing across the curriculum, or critical thinking and writing.
- ENG 522:** *PRACTICUM IN COLLEGE TEACHING* **3 s.h.**
 This course introduces prospective composition instructors to the principles and practices of teaching at the college or university levels and provides a forum for discussing those ideas. Students will observe composition classes, draft syllabi, and develop, sequence, and test writing assignments. Emphasis is placed on diagnosing writing weaknesses, responding to writing, and evaluating it.
- ENG 523:** *INTERNSHIP IN WRITING* **3 s.h.**
 Interns receive tutorial, promotional, educational, organizational, or technical writing experience in university or other professional settings. This course provides for writing and editing tasks appropriate to the unit or organization. Some administrative and research work may be involved. (No more than 6 credits may be taken from ENG 523 and ENG 522 combined.)
- ENG 530:** *SEMINAR IN LINGUISTICS* **3 s.h.**
 A study of the philosophical basis of present day generative-transformational theory and its relationship to language acquisition and semantics.
- ENG 531:** *SEMINAR IN HISTORY OF THE ENGLISH LANGUAGE* **3 s.h.**
 Advanced study in historical linguistics. The development of the English language is reviewed toward supporting study and analysis of original historical texts in the English language. Students may elect a general approach or focus on a specific historical period.
- ENG 534:** *WORKSHOPS IN ENGLISH* **1-3 s.h.**
ENG 540: *INDEPENDENT STUDY* **1-3 s.h.**

MASTER OF SCIENCE IN LIBRARY SCIENCE

Master of Science in Library Science

College of Education and Human Services Department of Library Science

Graduate Faculty

Professors: B. Vavrek; **Associate Professors:** W. Buchanan, J. Maccaferri, A. Miller; **Assistant Professor:** J. McGinn

Mission

The Department of Library Science of Clarion University of Pennsylvania is dedicated to educating individuals in the competencies needed for traditional and emerging careers in librarianship. The department views librarianship as the management and dissemination of information and knowledge to meet the needs of a global society. Within this context, the department is committed to assisting professional librarians, their staffs, and their organizations, particularly those who serve rural populations. The department contributes to the profession through research, publications, and the professional leadership of its faculty.

Goals

To achieve its mission, the department:

- offers programs at the undergraduate level and professional degree programs at the graduate level;
- develops and presents continuing education programs;
- provides programs on campus and through distance education;
- promotes faculty development; and
- fosters a collegial environment.

Graduate Program Objectives

The graduate program in library science provides professional study encompassing principles and techniques common to all types of libraries and information centers with the opportunity for advanced work in areas of special interest. The curriculum reflects today's applications of information technology in libraries and information centers.

The master's program at Clarion University was initiated in 1967 and has the distinction of being the first graduate library science program offered within the State System of Higher Education. The program has been accredited by the American Library Association since 1976.

M.S.L.S. Admission Requirements *Eligibility*

Applicants for admission to the Master of Science in Library Science degree program must meet Division of Graduate Studies admission requirements with the following additions:

1. an overall quality-point average for the baccalaureate degree of at least 3.00 on a 4.00 scale; or
2. a 3.00 quality-point average for the last 60 credits of the baccalaureate degree with an overall quality-point average of at least 2.75; or
3. a 2.75 to 2.99 overall quality-point average for the baccalaureate degree with a score of at least 50 on the Miller Analogies Test or a combined score of at least 1,000 on the quantitative and verbal sections of the Graduate Record Examination; or
4. a graduate degree in another discipline with an overall quality-point average of at least 3.00 and an overall undergraduate quality-point average of at least 2.75.

International students are required to achieve a minimum score of 550 on the TOEFL.

Procedure

While students may begin their studies during the fall or spring semesters or during any summer session, the department recommends that they begin during the summer or fall to ensure the ideal sequence of courses. All students must enroll in LS 504: Introduction to the Information Professions as close as possible to the start of their program as the department's course schedule permits. For most students this will be in their first term of study. Students may enroll in no more than twelve semester hours of coursework in a fall or spring semester, no more than three semester hours in a summer pre-session, and no more than six semester hours in a regular summer session, without the permission of the department.

Transfer of Credits/Waiver of Courses

A maximum of six graduate semester hours may be transferred and/or waived in any of the following ways:

- Acceptable graduate credits in library science completed at Clarion University as a non-degree student or at another institution with an ALA-accredited program may be transferred and applied toward the master's degree. The student is responsible for filing an official graduate transcript of any work presented for transfer credit with the chair of the Department of Library Science.

- Graduate credit in related disciplines may be transferred upon prior approval by advisor and chair.
- Students who have had library experience duplicating the subject matter covered in required courses may be permitted to take a qualifying examination to determine whether he or she might waive the course(s) and substitute elective courses. Qualifying examinations may be waived at the chair's discretion.

Degree Requirements

The degree of Master of Science in Library Science is conferred upon the candidate who has met the following requirements:

- The completion of 36 hours of approved graduate study, including six required core courses (LS 500, 501, 502, 504, 550, and 553) and six elective courses.
- The maintenance of a cumulative average of 3.00 or higher. A student who receives a grade of "C" or lower in two or more courses is disqualified as a candidate in the degree program unless special permission to continue is obtained from the dean of the College of Education and Human Services and the dean of Graduate Studies.
- The completion of all degree requirements within a six-year period. Course work over six years old may not be applied toward the degree.

Master of Science in Library Science Degree with Pennsylvania School Library Media Certification

A student wishing to obtain Pennsylvania School Library Media Certification, K-12, must hold a valid teaching certificate; complete 36 semester hours of an approved curriculum in library science; and complete three semester hours of internship in a school library media center.

Admission Requirements

The admission requirements for M.S.L.S. program apply, with the following additions:

- Satisfactory scores for the Graduate Record Exam General Test or the Miller Analogies Test
- Three faculty and/or professional recommendations; recommendation forms should document applicant's potential and/or effectiveness in the areas of teaching ability and/or professional performance.
- The applicant must show evidence of six credits of college-level math and six credits of college-level English composition and literature. Students without prior certification must take



the Praxis I; test scores are to be sent to the Graduate Studies office.

Required courses for the Master of Science in Library Science degree with Pennsylvania School Library Media Certification, K-12, include: LS 500, 501, 502, 504, 550, 553, 555/577, 565, 583, 459g, LS 490g, and either LS 540/568/571 or an advanced technology course (e.g., LS 560/573/574/575/584/585, or 586).

Continuing Education

Certificate of Advanced Studies

The Certificate of Advanced Studies program is designed to provide the post-master's student an opportunity to expand and update professional skills and competencies through a structured pattern of continuing education. Study may be either full- or part-time. On a full-time basis, the certificate may be completed in two semesters. Requirements include a written statement of personal/professional goals, completion of a program of 24 graduate credits within a four-year period, and maintenance of a 3.00 (B) quality-point average.

Documentation required for admission includes a goals statement, an official transcript from the school that granted the master's degree in library science, completed university application for admission form and recommendation forms, and the \$30 application fee. Further information is available from the Graduate Studies office.

Non-Degree Status

Individuals not interested in a formal degree or certificate program may enroll in courses as a non-degree student; however, no more than six credits of work completed as a non-degree student may later be transferred to a degree or certificate program. Students must have a baccalaureate degree from a regionally accredited institution, submit a completed application form and official transcripts, and pay the \$30 application fee. Further information is available from the Graduate Studies office.

Distance Education

As part of its commitment to meeting the needs of all residents of the Commonwealth of Pennsylvania, the Department of Library Science offers a variety of distance education programs. These programs utilize various delivery techniques, including on-site instruction, interactive television (ITV), and web-based delivery. ITV delivery involves two or more sections of the same course that are taught simultaneously by the same instructor from a central location. Students at remote sites participate in the class via two-way audio and video. Courses offered via the World Wide Web may, at the instructor's discretion, require some on-campus meetings.

Once admitted to graduate study at Clarion University, students may enroll in any of the distance education courses offered by the department. These courses may be taken as part of a master's or Certificate of Advanced Studies program, or individually for continuing education purposes.

The following distance education programs are currently available:

- Dixon University Center, Harrisburg, Pennsylvania
- Southpointe Center, Canonsburg, Pennsylvania
- Web-based courses

Graduate Assistantships and Scholarships

The Department of Library Science has available a number of assistantships for both entering and continuing students. Continuing students may compete for several department scholarships. For more information concerning assistantships, refer to the general information section of this catalog. Graduate students are eligible for the following department scholarships:

- The Charles R. Flack Scholarship in Library Science
- The Elizabeth A. Rupert Graduate Scholarship in Library Science
- The H. W. Wilson Scholarship

Scholarship application deadlines are announced on the department's calendar. Applications for graduate assistantships are included in the packet of information sent to all prospective students.

Additional information on financial aid may be obtained from the booklet, *Financial Assistance for Library and Information Studies*, published by the American Library Association Committee on Education.

Advisement

Students are assigned a faculty advisor upon admission to the program. Students must discuss course scheduling with their advisor in order to register for classes each semester. At any time, a student may select a dif-

ferent advisor having greater expertise and experience in the student's area of interest. In addition to assisting students in developing a program of study, faculty advisors work with students to develop career objectives, prepare resumes, and plan a job search.

Internship

LS 570: Internship in Librarianship enables a student to anticipate the librarian's professional role and to gain related experience. The major purpose of this course is to familiarize the student with practical problems in the field by providing laboratory experience in the professional atmosphere of a cooperating library or information center.

Each student's internship is an individual experience. The student identifies a prospective internship site and cooperating librarian and proposes a set of objectives he or she plans to achieve through the internship. These objectives, stated behaviorally, are discussed by the student, the faculty member responsible for the internship program, and the cooperating librarian. Once these objectives are finalized, the student is evaluated on the degree to which the objectives have been achieved and the process leading to the realization of the objectives. There is a periodic review of each student's objectives.

Resources and Facilities

The Department of Library Science is located in Becker Hall while Carlson Library is under renovation during 2000-2002. Upon completion of this project, the department will be located on the second floor of the library. The department offices, classrooms, and laboratories accommodate a variety of activities for students and faculty within a compact area. Library Science classrooms are equipped with appropriate audiovisual equipment, including networked computer display units. Students have ready access to a wide variety of information services, both on-line and on CD-ROM, and to standard microcomputer applications in the department's Computer Laboratory. Also housed here are cataloging tools and other print resources. All students receive e-mail accounts and access to the Internet.

Center for the Study of Rural Librarianship

The Department of Library Science is dedicated to addressing the information needs of the constituencies of all types of libraries, large and small. The Center for the Study of Rural Librarianship was organized in recognition of this need. "Rural" is defined by the center as a population of 25,000 or fewer people. The center has developed out of a particular concern for library services apart from areas influenced by metropolitan library systems, i.e., the small library in the rural context. Public, school, academic, and special or corporate libraries are

all within the interests of the center. Further, library systems or networks that include the small library are included in the center's work.

The activities of the center are varied. They include the annual hosting of a national bookmobile conference along with statewide and regional conferences relating to community economic development and information technology. In addition to continuing education activities, the center conducts ongoing research on a variety of rural-related topics. Additionally, a major project of the center involves an annual investigation of the impact of public libraries in the United States. The H.W. Wilson Foundation supports the latter activity.

The center supports a publication program that includes a biannual journal, *Rural Libraries*, the only one that is being published in the area of rural librarianship.

Current Studies in Librarianship

Current Studies in Librarianship is a forum for research by library science students on subjects of general interest to librarians. It is published jointly by the Department of Library Science and the Division of Graduate Studies under the co-editorship of Dr. James T. Maccaferri and Dr. William Buchanan. Papers submitted for publication should be readable, timely, thought provoking, and contain new information or approach known information with new insight. All submissions should conform to the *Publication Manual of the American Psychological Association*, 4th ed. (Washington, D.C.: American Psychological Association, 1994), and should be typed using double spacing throughout. If possible, manuscripts should be prepared using Microsoft Word (Windows or Macintosh) and should be submitted on disk and in hard copy. Address subscription inquiries and manuscript submissions to *Current Studies in Librarianship*, Department of Library Science, Clarion University of Pennsylvania, 840 Wood Street, Clarion, PA 16214-1232, or send e-mail to cur_studies@clarion.edu. *Current Studies in Librarianship* is indexed in *Library and Information Science Abstracts* (LISA) and *Library Literature*.

Institute for the Study and Development of School Library Information Centers

The institute was established in fall 1999 as a unit of the Center for the Study of Rural Librarianship. It conducts and disseminates research in the areas related to school library development and the professional education of school librarians; provides professional development opportunities for school library information professionals, classroom teachers, and school administrators within Pennsylvania and across the nation; and provides consulting services to schools and agencies interested in the development of urban or rural school library media centers.

Beta Phi Mu International Library Science Honor Society

Beta Phi Mu was founded in August 1948 at the University of Illinois by a group of leading librarians and library educators. The motto of the society is "Aliis Inserviando Consumor," which reflects the dedication librarians must possess toward service to others if books are to become instruments of liberal education.

Beta Phi Mu approved a chapter at Clarion in August 1978. The chapter, Beta Sigma, was installed and the first members were initiated in spring 1980. Membership in this international society is granted to a graduate of a library school program accredited by the American Library Association who has earned a 3.75 scholastic average on a 4.00 scale and has been recommended by the library school faculty. The faculty recommendation attests to the candidate's professional competence and promise. At present, the local chapter is permitted to grant membership to only 25 percent of the graduating class each year.

Opportunities for Service

American Library Association Student Chapter

The American Library Association Student Chapter was established in 1992 and formally recognized by the Student Senate in 1993. It provides both undergraduate and graduate students with opportunities for professional education and service beyond those provided by course work. Chapter activities include round table discussions, field trips, participation in community projects, and sponsorship of colloquium speakers.

Lambda Sigma

Lambda Sigma is an organization dedicated to furthering camaraderie between students and faculty of the Library Science program, and to help with various projects in the community related to the library profession.

Special Libraries Association Student Chapter

The Special Libraries Association Student Chapter was established in 1996 and officially recognized by the association in the same year. Special libraries and information centers are found in businesses, government agencies, museums, hospitals, and professional associations. The student chapter offers students opportunities to learn more about special librarianship by visiting special libraries, by sponsoring speakers, and by participating in service projects in local libraries.

Department Governance

Students are encouraged to participate in developing and evaluating department policies and procedures through membership on department and university committees.



Career Outlook

Prospects for the future are extremely positive for well-prepared new graduates guided by creative faculty advisors. Employment opportunities vary according to the type of library, educational qualifications, and the areas of specialization of the individual preparing to enter the profession. The librarian who is flexible with re-

spect to geographic area and willing to meet the challenge of serving special groups will have especially good opportunities for employment.

Placement Service

Clarion University of Pennsylvania and the Department of Library Science assist both students and alumni in obtaining positions in libraries and related agencies by acting as a clearinghouse for current job information and by posting vacancy announcements. The student must request official academic transcripts from the university registrar. The Department of Library Science publishes a comprehensive position listing on the World Wide Web.

The Office of Career Services provides assistance to all graduates by maintaining a file of vacancy notices received from public schools, government agencies, business, and industry. It also provides assistance in preparing resumes and in developing interview and communication skills.

Library Science Courses

- LS 432:** *COLLOQUIUM* **0 s.h.**
Lectures, discussions, multi-media presentations given by guest speakers, faculty, and others. Reinforces concepts presented in course studies and provides the student with insight into the trends and issues of the profession.
- LS 459g:** *MEDIA, METHODS, AND THE CURRICULUM* **3 s.h.**
In accordance with the 1998 national Information Power standards, this course examines the role of library media specialist as a collaborator with other educators. Students design units of instruction in which information literacy skills are taught while meeting content standards. The process of instructional design is analyzed and utilized when planning for any instructional event. Students who are planning to be instructional technologists utilize the ID process to design inservice modules for faculty. This course has an intensive field experience component that is individualized to meet students' career goals. Prerequisites: Valid teaching certificate or the following courses: LS 555 or 577, 583, 490, and 565.
- LS 490g:** *LIBRARY MATERIALS AND SERVICES FOR SPECIAL AUDIENCES* **3 s.h.**
An opportunity for students to explore the nature and needs of special groups of library users in order to develop collections of materials and to design programs of services to accommodate those needs. Special needs in all types of library settings-academic, public, school, and special-are examined in particular; the unique characteristics and instructional needs of exceptional learners who use the school library are explored. Bibliotherapy and other techniques are investigated to determine their validity for the exceptional learner.
- LS 500:** *INFORMATION SOURCES AND SERVICES* **3 s.h.**
Philosophy and techniques of information services in libraries, with the sources, tools, and technology essential to the reference process. Specific reference problems and research studies, the reference interview, bibliographic instruction, and search strategies are considered. Recommended as an elective for nonlibrary science students in other graduate programs.
- LS 501:** *DEVELOPING LIBRARY COLLECTIONS* **3 s.h.**
Acquiring familiarity with basic bibliographical tools, current reviewing media, and acquisitions procedures. Establishment of policies and criteria for the selection and evaluation of book and nonbook materials.
- LS 502:** *CATALOGING AND CLASSIFICATION* **3 s.h.**
Introduction to the principles and techniques of organizing information with special reference to contemporary library practice. Students are introduced to descriptive cataloging using Anglo-American Cataloguing Rules, alphabetical indexing using Library of Congress Subject Headings and Sears List of Subject Headings, and systematic indexing using the Dewey Decimal Classification and the Library of Congress Classification. The structure and use of manual and automated catalogs and indexes are considered.
- LS 504:** *INTRODUCTION TO THE INFORMATION PROFESSIONS* **3 s.h.**
This course introduces students to the nature of information and its role in society, the philosophical, ethical, and historical foundations of the information professions, major professional organizations, and the legal, political, and social issues confronting today's information professionals. The identification and use of print and electronic information resources pertinent to library and information science are also covered.

- LS 540:** *MULTICULTURAL SOURCES AND SERVICES FOR EDUCATORS AND LIBRARIANS* **3 s.h.**
This course provides an opportunity for students to explore, understand, and develop library and educational resources and services for multicultural, diverse, and other special populations. Resources and services are examined particularly as they relate to ethnicity, race, gender preference, and disability. Students will develop a sensitivity to the learning and informational needs of various cultural and ethnic groups and will develop techniques for selecting and using materials relevant to a multicultural society.
- LS 550:** *INTRODUCTION TO RESEARCH IN LIBRARY SCIENCE* **3 s.h.**
Study of the scientific methods of planning, conducting, and reporting investigation and research in library science, including specific problems in library service. Critical analysis of research in professional literature. Designed to develop skill in interpreting research results.
- LS 551:** *STORYTELLING* **3 s.h.**
Study of the heritage and art of traditional storytelling, the literary sources for contemporary storytelling, and the techniques for preparing and presenting story programs. Consideration will be given to multi-media storytelling, including puppetry. Students will present stories in class and in the community. Prerequisite: LS 577 (or equivalent). Open to M.Ed. candidates by permission from the instructor.
- LS 552:** *ADVANCED CATALOGING AND CLASSIFICATION* **3 s.h.**
In-depth exploration of the issues involved in organizing collections with special reference to authority control, the cataloging and classification of nonbook materials (including electronic resources), and the use of Library of Congress Subject Headings and the Library of Congress Classification. Prerequisite: LS 502.
- LS 553:** *MANAGEMENT OF LIBRARIES* **3 s.h.**
A study of organizational structure, management styles, budgeting, human resources management, and the impact of technological advances. Architectural design, with emphasis on the relationship of physical structure to library function, is discussed. Standards for evaluating library services are studied in depth.
- LS 555:** *HISTORY OF CHILDREN'S LITERATURE* **3 s.h.**
Survey of the history and development of children's literature from the Anglo-Saxon period in England through the nineteenth century. Biennially.
- LS 556:** *BIBLIOGRAPHY OF THE SCIENCES* **3 s.h.**
Survey of the literature and practice of librarianship in major areas of the sciences, including biology, chemistry, engineering, geology, mathematics, medicine, and physics. Prerequisite: LS 500.
- LS 557:** *BIBLIOGRAPHY OF THE SOCIAL SCIENCES* **3 s.h.**
Survey of the literature and practice of librarianship in major areas of the social sciences, including anthropology, business, economics, education, geography, history, political science, and psychology. Prerequisite: LS 500.
- LS 558:** *BIBLIOGRAPHY OF THE HUMANITIES* **3 s.h.**
Survey of the literature and practice of librarianship in the humanities, including art, literature, music, philosophy, religion. Prerequisite: LS 500.
- LS 560:** *LIBRARIES AND PUBLIC ACCESS COMPUTING* **3 s.h.**
Analysis of the present and future roles of academic, school, and public libraries in the emerging environment of public access computing. Enabling librarians to take a leadership role in public access computing is a major goal of this course.
- LS 562:** *GOVERNMENT DOCUMENTS* **3 s.h.**
Study and evaluation of selected federal, state, and municipal documents, foreign government publications, and the United Nations. The nature of documents, their reference and research value; the techniques of acquisition, organization, and bibliographic control; on-line commercial and government data bases. Prerequisites: LS 500, 502.
- LS 565:** *SELECTION, PRODUCTION, AND UTILIZATION OF NONBOOK RESOURCES FOR EDUCATORS* **3 s.h.**
The focus in the course is on the selection, acquisition, organization, storage, and maintenance of nonbook materials of all formats in schools, libraries, and system-wide centers. Sample materials are previewed, evaluated, and used for library and teacher inservice programming and for instruction with student populations.
- LS 568:** *HISTORY OF BOOKS AND PRINTING* **3 s.h.**
Study of the evolution of the printed book through a survey of the origin of recorded communication; history of writing materials; study of manuscript production, typography, type design, illustration, bookbinding, book production, and copy-right from the earliest times to the present.
- LS 569:** *TECHNICAL SERVICES* **3 s.h.**
Introduction to the historical development and current trends of technical services; management and systems involved in the operation/automation of a technical services department (acquisitions, serials control, charging systems, cataloging, and classification). Prerequisites: LS 501, 502.
- LS 570:** *INTERNSHIP IN LIBRARIANSHIP* **3 or 6 s.h.**
Provides an advanced preprofessional experience in the atmosphere of a cooperating library or information center in which the student is able to apply and evaluate the theory and practice learned in the classroom. Students participate in seminar meetings, prepare an evaluative paper, and are observed and evaluated by both the site supervisor and the internship coordinator. Prerequisites: four core and four elective courses pertinent to the internship, permission of the student's advisor, the internship coordinator, and the department chair.
- LS 571:** *INTERNATIONAL LIBRARIANSHIP* **3 s.h.**
Study of libraries and librarianship in selected countries, with emphasis on library education as related to cultural, technological advances, and global politics. Considers the role of professional organizations and the impact of worldwide library education.
- LS 573:** *LIBRARY AUTOMATION* **3 s.h.**
Survey of library automation; the application of computers to library technical and administrative processes. The state of the art; case studies of automation projects; systems analysis; design of library automation projects.

- LS 574:** *DATABASE SEARCHING* **3 s.h.**
General introduction to interactive database searching, including database producers, search system vendors, management of search services, search strategy, Boolean searching, structure and indexing of computer stored files. The course includes historical and background information. Greatest emphasis is on becoming a proficient searcher.
- LS 575:** *INFORMATION SYSTEMS* **3 s.h.**
Seminar approach is used to allow students to examine topics of interest in the information systems field, culminating in the preparation of a term project such as a literature survey, the design of a computer program, or other topics appropriate to the course of studies.
- LS 576:** *SPECIAL TOPIC IN LIBRARIANSHIP* **3 s.h.**
In-depth discussion, study, and research of a topic related to the role of the library in responding to social issues, service to special groups, or problem areas. The following represent typical offerings: (1) Bibliotherapy; (2) Microcomputers in Libraries; (3) Library Services for the Gifted; (4) Media and Minorities; (5) Oral History; (6) Connectivity: Understanding the Information Infrastructure. Prerequisites: LS 500, 501, 502, equivalent or permission of the instructor. A maximum of six credit hours may be applied toward graduation.
- LS 577:** *LIBRARIES, LITERATURE, AND THE CHILD* **3 s.h.**
Opportunity for graduate students to investigate (1) the nature of children's literature; (2) the utilization of children's literature in school, public and special library settings; (3) trends in children's literature as a part of the total body of literature and as an educational force; and (4) current research in the field. Biennially.
- LS 578:** *THE RURAL PUBLIC LIBRARY IN AN URBAN ENVIRONMENT* **3 s.h.**
Introduction to the public library in the United States, with special concern for the small rural library. Particular emphasis on the problems and limitations of such libraries and approaches for overcoming them.
- LS 580:** *LIBRARY MARKETING AND THE COMMUNITY* **3 s.h.**
Addresses the following aspects of successful community analysis and marketing of library services: the current and potential library users; their specific informational needs; and how the library can provide adequate service.
- LS 581:** *SEMINAR IN PROBLEMS OF RURAL LIBRARY SERVICES* **3 s.h.**
Problem-analysis approach to providing services to rural populations by school, public, academic, and other libraries. Examines networking, technology, funding, governmental regulations, etc., as they relate to rural library services. Prerequisites: LS 550, 553.
- LS 582:** *SERIALS* **3 s.h.**
Organization and management of serial publications: includes the format, selection, bibliographic control (manual and mechanized), and preservation techniques; the selection of jobbers and the services they offer. Prerequisites: LS 501, 502.
- LS 583:** *LIBRARIES, LITERATURE, AND YOUNG ADULTS* **3 s.h.**
Examination of the role of the librarian in the selection, evaluation, and use of materials for junior and senior high school age library users. Includes a study of young adult literature and trends affecting its development; techniques for providing reader advisory services; methods of reaching and serving multicultural and special needs audiences; characteristics of the young adult in contemporary society; and development of programs and other means of introducing young adults to books and nonbook media, with special attention to emerging electronic products and services.
- LS 584:** *AUTOMATED BIBLIOGRAPHIC CONTROL* **3 s.h.**
Incorporates theory and practice of automated bibliographic control as applied to acquisitions, cataloging, interlibrary loan, and serials control. The course includes an orientation to the major bibliographic utilities, including OCLC, and to selected CD-ROM products. Both the technical and managerial aspects of automated bibliographic control are covered. Prerequisite: LS 502.
- LS 585:** *MICROCOMPUTERS IN LIBRARIES* **3 s.h.**
This course is concerned with the concepts and uses of microcomputer technology, including LANs and CD-ROM LANs, in all types of libraries. Emphasis is on hardware and software applications as they relate to library functions, e.g., data management and information services.
- LS 586:** *LIBRARIES AND NETWORKING* **3 s.h.**
This course is concerned with the principles, concepts, and application of networking activities in all types of libraries. National and international networks are emphasized, particularly the Internet.
- LS 587:** *INDEXING AND ABSTRACTING* **3 s.h.**
In-depth survey and hands-on development of documents surrogates, including annotations, abstracts, precis, and other forms of indexing.
- LS 588:** *PRESERVATION AND CONSERVATION OF LIBRARY MATERIALS* **3 s.h.**
Survey of preservation and conservation activities in libraries and information centers, including disaster planning, environmental factors, treatment of brittle books, library binding, special problems of nonbook materials, and basic conservation treatments. Prerequisites: LS 501 or permission of instructor.
- LS 591:** *BUSINESS REFERENCES SOURCES AND SERVICES* **3 s.h.**
Survey of the literature and services which would be expected in a business library or department of business information. Includes an in-depth examination of major business reference tools, as well as in-depth examination of the special operations, organization, and management of business libraries and departments of business information.
- LS 600:** *INDEPENDENT STUDY/SEMINAR* **3 s.h.**
An opportunity for the advanced graduate student to investigate in depth a facet of librarianship and to prepare a scholarly paper or project to report his or her findings. The topic for study must be approved by a faculty committee, and the work must be supervised by a faculty member. Prerequisites: Four core and four elective courses pertinent to the independent study, permission of the student's advisor and the department chair. On demand.

MASTER OF EDUCATION DEGREE IN MATHEMATICS

Master of Education Degree in Mathematics

College of Education and Human Services

Graduate Faculty

Professors: N. Bezak, D. Bhattacharya, B. Freed, S. Gendler, J. Reynolds; **Associate Professors:** K. Bolinger, R. Engle, M. Parker, S. Ringland, G. Rock; **Assistant Professors:** J. Beal, R. Carbone, D. Hipfel, M. McConnell

Program Objectives

The Master of Education in mathematics is designed to permit in-service teachers of secondary mathematics to obtain permanent certification in mathematics as they further their graduate education in the discipline. Students have an opportunity to meet all the competencies recommended by the Committee on Undergraduate Programs in Mathematics (CUPM) and other certifying agencies while obtaining additional depth in the field and sharpening teaching skills. The program also provides students in related fields an opportunity to work concurrently toward teaching certification and a Master of Education degree.

Admission Requirements

Clarion University's general admission requirements apply, with the following additions:

- A baccalaureate degree from an acceptably accredited college or university
- Undergraduate minimum quality-point average is 3.0 or above (on a 4.0 scale)
- Satisfactory scores for the Graduate Record Exam General Test **or** the Miller Analogies Test
- Three faculty and/or professional recommendations; recommendation forms should document applicant's potential and/or effectiveness in the areas of teaching ability and/or professional performance
- Most students will enter the program with an undergraduate major in mathematics with secondary teaching certification and will have had the following courses or their equivalents:

MATH 300: Intro. to Advanced

Mathematics 3 s.h.

MATH 321: Intermediate Applied Statistics 3 s.h.

MATH 357: Modern Geometry 3 s.h.

MATH 370: Linear Algebra 3 s.h.

MATH 451: Modern Algebra I 3 s.h.

ED 339: Methods of Teaching and Evaluating

Mathematics 3 s.h.

Students lacking these courses may be required to take them in addition to their degree requirements.

Degree Requirements

To fulfill degree requirements for graduation, students must:

- complete a minimum of 30 semester hours of course work;
- maintain a quality-point average of 3.00/4.00 in all courses presented for the degree; and
- complete a satisfactory research paper or pass a comprehensive examination.

Proficiency Requirements

Proficiency in real analysis demonstrated by completing MATH 471: Real Analysis I (3 semester hours) or by examination. Proficiency in computer programming demonstrated by completing CIS 163: Introduction to Programming and Algorithms I or equivalent course or by experience.

REQUIRED COURSES

	12 s.h.
MATH 531: Topics in Geometry	3 s.h.
MATH 532: Statistics	3 s.h.
MATH 533: Foundations of High School	
Mathematics	3 s.h.
ED 634: Teaching Mathematics	3 s.h.
ELECTIVES IN EDUCATION	3-6 s.h.
At least one of the following:	
ED 520: Introduction to Research	3 s.h.
ED 521: Instructional Leadership Skills	3 s.h.
ED 522: Analysis of Teaching	3 s.h.
ED 523: Curriculum Development and Evaluation	3 s.h.
ED 526: Sociology of Education	3 s.h.
ED 537: Strategies-Teaching Elem. School Math	3 s.h.

RELATED ELECTIVES

0-3 s.h.

One course may be chosen from a related area in consultation with the advisor. Related areas include: library science, business, communication, education.

ELECTIVES IN MATHEMATICS

9-15 s.h.

MATH 530: New Mathematics-Elementary	
Classroom	3 s.h.
MATH 541: Recreational Mathematics	3 s.h.
MATH 553-554: Functions of a Real Variable I, II	6 s.h.
MATH 555: Topology	3 s.h.
MATH 557: Infinite Series	3 s.h.
MATH 559: Complex Variables I	3 s.h.
MATH 561-562: Abstract Algebra I, II	6 s.h.
MATH 563: Linear Algebra	3 s.h.

- MATH 569: Mathematical Logic** 3 s.h.
MATH 573: Numerical Analysis I 3 s.h.
MATH 575: Algebraic Number Theory I ... 3 s.h.
MATH 580: Seminar 3 s.h.
MATH 599: Individual Research 1-3 s.h.

Assistantships

A limited number of assistantships may be available. These are awarded only to full-time students. Applicants for assistantships must complete the regular admission procedure in order to be considered for an appointment and then file a letter of application with the chair of the Department of Mathematics. Applications should be submitted by April 15.

Advisement

Upon admission to the M.Ed. program in mathematics, students are assigned advisors who will help them plan their programs. It is the responsibility of students, with the help of their advisors, to meet all requirements for the degree.

Facilities

Facilities include a conference room and study areas on the ground floor of Peirce Science Center. Students have access to the VAX computer directly and through on-line terminals. In addition, hands-on use of Macintosh microcomputers in our computer laboratory is encouraged.



Mathematics Courses

- MATH 421:** **MATHEMATICAL STATISTICS I** 3 s.h.
 Basic concepts of elementary probability; probability in finite spaces; conditional probability; independent trials; sophisticated counting; probability in relation to random variables. Prerequisites: MATH 272 and 300.
- MATH 422:** **MATHEMATICAL STATISTICS II** 3 s.h.
 Mathematical expectation; discrete and continuous random variables; probability densities; sampling distributions; point estimations; interval estimations; tests of hypotheses, regression and correlation; analysis of variation; moment-generating functions. Prerequisite: MATH 421.
- MATH 451, 452:** **MODERN ALGEBRA I, II** 3 s.h. each
 An introduction to groups, rings, integral domains, and fields. Prerequisite: MATH 300. Fall and spring respectively.
- MATH 454:** **THEORY OF NUMBERS** 3 s.h.
 Factorization, congruence, quadratic reciprocity. Number theoretic functions, diophantine equations, continued fractions. Prerequisite: MATH 300.
- MATH 459:** **INTRODUCTION TO COMPLEX VARIABLES** 3 s.h.
 An introduction to complex numbers, analytic functions, poles, residues, and their applications, including the fundamental theorem of algebra. Prerequisites: MATH 272 and 300.
- MATH 471, 472:** **INTRODUCTION TO REAL ANALYSIS** 3 s.h.
 Limits, continuity, differentiability, integrability, and convergence for functions of a real variable and several variables. Prerequisites: MATH 272 and 300.
- MATH 473:** **ELEMENTARY TOPOLOGY** 3 s.h.
 Topological spaces, metric spaces, compactness, connectedness. Prerequisites: MATH 272 and 300.
- MATH 480:** **TOPICS** 3 s.h.
 This course offers special topics reflecting the interests of students. The specific topic to be covered each term will be announced in advance. Prerequisites: MATH 272 and permission of the instructor.
- MATH 490, 491, 492:** **SEMINAR I, II, III** 1 s.h. each
 Seminar in mathematics. An oral and written presentation is required.
- MATH 530:** **NEW MATHEMATICS—ELEMENTARY CLASSROOM** 3 s.h.
 A seminar on recent topics in mathematics of interest to elementary school teachers.
- MATH 531:** **TOPICS IN GEOMETRY** 3 s.h.
 Topics to be selected from: Properties of Triangles, Properties of Circles, Collinearity and Congruence, Transformational Geometry, Inversive Geometry, Projective Geometry. Prerequisite: MATH 357.
- MATH 532:** **STATISTICS** 3 s.h.
 Probability theory, combinatorial analysis, stochastic independence, binomial, Poisson and normal distributions, Bernoulli Trials, moments generating functions, Markov Chains, time dependent stochastic processes. Prerequisite: MATH 421.
- MATH 533:** **FOUNDATIONS OF HIGH SCHOOL MATHEMATICS** 3 s.h.
 An upper-level development of the basic structure of natural numbers with indications how to present them in the high school classroom. Topics including integers, fractions, real and complex numbers are followed by computational techniques such as Newton Raphson method with computer applications in the secondary class room. Prerequisite: MATH 452.

- MATH 541:** *RECREATIONAL MATHEMATICS* **3 s.h.**
A survey of recreational mathematics through history. Topics include arithmetic, geometric and topological recreations, paradoxes, games, and board puzzles.
- MATH 553-554:** *FUNCTIONS OF REAL VARIABLE I, II* **3 s.h. each**
Fundamental properties of continuous and differentiable functions, uniform convergence, Lebesgue measure, and integration. Prerequisite: MATH 472 or its equivalent.
- MATH 555:** *TOPOLOGY* **3 s.h.**
Topological space, connectedness, compactness, continuity, separability, countability axioms, and metric spaces. Prerequisite: MATH 471 or its equivalent.
- MATH 557:** *INFINITE SERIES* **3 s.h.**
Convergent series of constants, power series, summability, uniform convergence, Fourier series. Prerequisite: MATH 471 or its equivalent.
- MATH 559:** *FUNCTIONS OF A COMPLEX VARIABLE I* **3 s.h.**
Analytic functions, Cauchy's integral theorems, Taylor series, analytic continuation, residue theory. Prerequisite: MATH 472 or its equivalent.
- MATH 561-562:** *ABSTRACT ALGEBRA I, II* **3 s.h.**
Theory of groups, rings, ideals, integral domains, and fields. Prerequisite: MATH 452 or its equivalent.
- MATH 563:** *LINEAR ALGEBRA* **3 s.h.**
Vector spaces, matrices, linear transformations. Prerequisite: MATH 452 or its equivalent.
- MATH 569:** *MATHEMATICAL LOGIC* **3 s.h.**
An introduction to mathematical logic.
- MATH 573:** *NUMERICAL ANALYSIS I* **3 s.h.**
Basic properties of round-off error, polynomial approximation, interpolation, numerical differentiation, numerical quadrature, functional approximation, solution of non-linear equations, and simultaneous linear equations. Prerequisite: MATH 460 or its equivalent.
- MATH 575:** *ALGEBRAIC NUMBER THEORY I* **3 s.h.**
Algebraic number fields, cyclotomic fields, algebraic integers, integral bases and discriminant, arithmetic in algebraic number fields, properties of ideals including the Fundamental Theorem of Ideal Theory. Prerequisite: MATH 452.
- MATH 580:** *SEMINAR* **3 s.h.**
Selected topics in algebra, analysis, geometry, topology. Prerequisite: One graduate course in the selected area.
- MATH 599:** *INDIVIDUAL RESEARCH* **1-3 s.h.**
Original mathematical research under the supervision of a member of the graduate faculty of the Department of Mathematics. Prerequisite: Permission of student's graduate committee.
- ED 634:** *TEACHING MATHEMATICS* **3 s.h.**
Advanced topics in the teaching of mathematics for secondary teachers. Topics may include curriculum design and evaluation, pedagogical models, testing, theory of learning, computers in the classroom, and current research and trends in mathematics education.



MASTER OF SCIENCE DEGREE IN NURSING FAMILY NURSE PRACTITIONER PROGRAM

Master of Science Degree in Nursing Family Nurse Practitioner Program

Clarion University/ Slippery Rock University

Graduate Faculty

Coordinator: Dr. Joyce Penrose White (SRU);

Professor: R. Nelson; **Associate Professors:**

M. Kavooosi (CU), K. Kellinger (SRU), L. Pritchett (CU),

B. Stright (CU), J. White (SRU); **Assistant**

Professors: N. Falvo (CU), P. Lawrence (CU),

K. Risco (SRU)

Clarion University (CU) and Slippery Rock University (SRU) jointly offer a Master of Science in Nursing with a family nurse practitioner emphasis. This is a 45 semester hour degree program leading to a master's degree in nursing; this program is accredited by the National League for Nursing. The degree program must be completed within six years of the first date of enrollment. Graduates of the program will receive a joint degree granted by both universities and are eligible to apply for legal certification in the Commonwealth of Pennsylvania.

Courses are offered at both Clarion and Slippery Rock Universities, including sites in Clarion, Oil City, Pittsburgh, Slippery Rock, and Wexford. Students enrolled in the program may utilize the facilities and services of both universities. Information about program requirements and administrative matters are available at both universities. Student advisors are available at both universities.

Program Objectives

The Master of Science in Nursing Program affords advanced practice nurses the opportunity to develop as expert clinicians, participate in shaping health policy, and contribute to research that improves patient care. The nursing program provides the foundation for a life-long process of personal and professional growth as well as for doctoral education.

Program Outcomes

Graduates will:

1. Synthesize knowledge from nursing, the sciences, and humanities into advanced nursing practice.
2. Demonstrate critical thinking and diagnostic reasoning in decision-making activities.
3. Use theoretical knowledge and research findings as a foundation for advanced nursing practice.
4. Incorporate professional/legal standards and moral/ethical values into a culturally sensitive practice.
5. Apply nursing knowledge and related theories to nursing and health through advanced clinical practice.

6. Build a professional system that includes interdisciplinary communication, collaboration, and teamwork.
7. Participate in legislative and policy-making endeavors that influence health care services and practices.
8. Contribute to nursing knowledge through advanced nursing practice and research.

Admission Requirements

Division of Graduate Studies (CU) and Office of Graduate Studies and Research (SRU) admission requirements apply and include the following:

- Payment of the \$30 application fee
- Evidence of an earned baccalaureate degree in nursing from an NLNAC-accredited program
- Hold licensure as a registered nurse in the Commonwealth of Pennsylvania
- An undergraduate quality-point average of 2.75 on a 4.00 scale or a graduate quality-point average of 3.0 on a 4.0 scale
- Satisfactory scores for the Graduate Record Exam General Test
- One year of recent full-time clinical practice or two years of part-time clinical practice; submit a resume describing professional experience
- Demonstrated ability in typing, using computer keyboard and using a word processing package
- Interview with a member of the CU or SRU nursing faculty
- Verification of professional liability insurance
- Two recommendation forms to be completed by physicians, registered nurses, supervisors, and/or teachers who have first-hand knowledge of applicant's professional performance
- Ability to analyze statistical data; applicants may demonstrate competency in statistics by providing evidence of course work successfully completed in the past or current enrollment in a basic statistics course.

Second Master's Policy

Second Master's Degree Curriculum

Individuals holding a graduate degree in nursing may earn a second masters in nursing degree in the CU/SRU Family Nurse Practitioner program. In order to qualify for a second master's degree, regardless of where the first degree was earned, graduate students must successfully complete a minimum of 30 hours of credit in the CU/SRU program beyond the first master's degree and meet

program requirements with respect to the required semester hours of credit and courses for the major. Second master's degree students would typically have transfer credits in nursing theory and research that could apply to the requirements of NURS 605: Evolution of Nursing Theory, NURS 610: Advanced Concepts in Nursing Research, and NURS 800: Thesis/Project. Students may petition for life experience credits for NURS 614: Nursing Interventions with Families and NURS 645: Nursing and Public Policy. Clinical courses and the internship are required of all degree students regardless of prior advanced education.

Post-Master's Certificate

A post-master's certificate is available to individuals who hold a graduate degree in nursing as nurse practitioners in specialty areas such as pediatrics, adult, or women's health. Nurse practitioners who wish to broaden their education as family nurse practitioners would have their previous educational preparation evaluated on an individual basis according to credentials, education, and professional experience. This review would be used to determine a program of study in the masters program that would be applicable for broadening their education to encompass family practice.

Program Policies

- Pennsylvania Nursing License Requirement: All students are required to possess a current Pennsylvania Nursing License.
- Students may transfer up to 12 credits of approved non-clinical course work if courses were taken within five years. Students may transfer up to nine credits from another master's degree.
- Students may challenge up to three credits of course work with permission.
- Students are admitted into this program after they have met the graduate admission requirements of CU and SRU graduate offices and have been recommended for acceptance by the Admission, Progression, and Graduation Committee. Notification of acceptance is by the Graduate Studies office of Clarion University (Administrative Site).



- Students are encouraged to have identified potential preceptors by the time they register for clinical courses in which a preceptor is required.

Degree Requirements

To fulfill degree requirements for graduation, the student must complete 45 semester hours, including required courses with a quality-point average of 3.0 or better on a 4.0 scale, and successful completion of a written comprehensive examination. A research project or thesis is required for graduation.

Performance Requirements

Retention Policy

Students who fail to maintain an overall quality-point average of 3.0 are automatically placed on probation. Students placed on probation must achieve satisfactory academic standing within one semester of registration or be removed from the program.

NON-CLINICAL COURSES

Students may earn a grade of "C" in only one non-clinical course without jeopardizing their status in the program. If an additional grade of "C" is earned, the student will be automatically placed on probation. Students placed on probation must repeat a "C" course and earn a grade of "B" or better the next semester the course is offered or be removed from the program. Only two "C" grades can be repeated. Additional grades of "C" will be cause for removal from the program.

CLINICAL COURSES

Students must maintain a "B" average in all clinical courses. If a grade of "C" or below is earned, the student will be automatically placed on probation. Students placed on probation must repeat that clinical course and earn a grade of "B" or better the next semester that course is offered or be removed from the program. Students can repeat one clinical course. An additional "C" in any clinical course will be cause for removal from the program.

Progression Policy

Students must maintain a "B" average or better in order to remain in good standing and a grade of "B" or higher in each clinical course in order to progress in the clinical sequence.

Readmission Policy

Students who withdraw from the program without securing a leave of absence, leave because of unsatisfactory performance, or fail to complete the program requirements in six years (or by the approved extension date) may apply for readmission to the nursing program if they have a cumulative quality-point average of 3.0.

The Admission, Progression, and Graduation committee will evaluate student requests for readmission and make a recommendation to the graduate faculty based on the following criteria: general academic history; grade-point average; clinical performance as evaluated by graduate nursing faculty and preceptors; time absent

from the academic program; and potential for success. Readmission to the nursing program is based on the professional judgment of the graduate nursing faculty and is contingent upon class size (space available).

Graduation Policy

Students must have an overall quality-point average of 3.0 in order to graduate from the program. The maximum time for completion of the degree program is six calendar years. Students must finish the program no later than two semesters after completing the clinical practice and research requirements.

It is the student's responsibility to file, with the aid of his or her advisor, an Application for Graduation before the published deadline during the semester in which he or she intends to graduate. Information on applying for graduation can be obtained from the Division of Graduate Studies at Clarion University.

Advisement

As part of the application process, the candidate must meet with a faculty advisor for an admission interview. Upon admission to the graduate nursing program, the student will be assigned a faculty advisor. The student may select an advisor from either Clarion or Slippery Rock graduate faculty. Before beginning the first course work, the successful applicant should meet with the graduate advisor for orientation and assistance in planning the first-semester program.

A minimum of nine credits per semester is considered a full load for graduate students, although students may register for up to twelve credits per semester without special permission. Students may not register for more than twelve semester hours during the summer. The Coordinator of Graduate Studies at Clarion University may authorize exceptions upon recommendation by the graduate faculty at Clarion University and Slippery Rock University acting upon a written petition by the student.

Courses

The following courses are required of all students graduating with a Master of Science in Nursing-Family Nurse Practitioner:

- * *NURS 601: Advanced Concepts in Pathophysiology* 3 s.h.
- NURS 602: Pharmacologic Applications* 3 s.h.
- ** *NURS 605: Evolution of Nursing Theory* 3 s.h.
- NURS 610: Advanced Concepts in Nursing Research* 3 s.h.
- *** *NURS 614: Nursing Intervention with Families* 3 s.h.
- NURS 615: Advanced Health Assessment* .. 3 s.h.
- NURS 620: Clinical Decision Making I* 3 s.h.
- NURS 630: Clinical Decision Making II* 5 s.h.
- NURS 631: Clinical Decision Making II: Role Seminar* 1 s.h.



NURS 640: Clinical Decision Making III . 5 s.h.

NURS 641: Clinical Decision Making III: Role Seminar 1 s.h.

NURS 645: Nursing and Public Policy 3 s.h.

NURS 750: Internship 6 s.h.

NURS 800: Thesis/Project 3–6 s.h.

* *NURS 601: Advanced Concepts in Pathophysiology is a prerequisite to NURS 602: Pharmacologic Applications and is a prerequisite or co-requisite to NURS 615: Advanced Health Assessment.*

** *NURS 605: Evolution of Nursing Theory is a prerequisite to NURS 610: Advanced Concepts in Nursing Research.*

*** *NURS 614: Nursing Interventions with Families is a prerequisite to the clinical courses and is a prerequisite or co-requisite to NURS 620: Clinical Decision Making I.*

Comprehensive Examination

In order to successfully complete the program, students must pass a written comprehensive examination after completing all courses, except NURS 750, with a minimum cumulative quality-point average of 3.0. The comprehensive exam tests the ability of the student to synthesize information from biological and pharmacologic sciences with principles of diagnosis and management in primary care. The program coordinator will contact a student who fails the comprehensive examination and plans will be made for remediation and re-examination. A second failure of the comprehensive examination will result in additional coursework followed by a third administration of an exam or dismissal from the program.

Curriculum

COURSE SEQUENCE

FULL-TIME

Fall-Year 1

615 Adv. Health Assessment
601 Adv. Con. Pathophysiology
614 Nursing Int. with Families
605 Evol. of Nursing Theory

Fall-Year 2

630/631 Clinical Decision II

Spring-Year 1

610 Adv. Con. in Research
602 Pharmacologic App
645 Nursing & Public Policy
620 Clinical Decision I

Spring-Year 2

640/641 Clin. Decision III

Summer-Year 1

800 Thesis/Project

Summer-Year 2

750 Internship

PART-TIME

Fall-Year 1

614 Nursing Int. with Families
601 Adv. Con. Pathophysiology

Fall-Year 2

615 Adv. Health Assessment
605 Evol. of Nursing Theory

Fall-Year 3

630/631 Clinical Decision II

Spring-Year 1

645 Nursing & Public Policy
602 Pharmacologic App

Spring-Year 2

610 Adv. Con. in Research
620 Clinical Decision I

Spring-Year 3

640/641 Clin. Decision III

Summer-Year 1

Summer-Year 2

800 Thesis/Project

Summer-Year 3

750 Internship

Nursing Courses

NURS 601: *ADVANCED CONCEPTS IN PATHOPHYSIOLOGY* **3 s.h.**

This course is devoted to the study of the physiological process of disease and the body's response to this process. It is the goal of the course to present broad physiological principles that nurse practitioners can apply to their clinical experiences. Specific diseases are used to exemplify pathophysiological concepts, and treatment is examined at the molecular level as response to the pathophysiology. The course investigates exogenous causes of diseases emphasizing infection, inflammation, and the immune response as well as endogenous diseases of the nervous, endocrine, cardiovascular, hepatic, pulmonary, and renal systems. Fall, annually.

NURS 602: *PHARMACOLOGIC APPLICATIONS* **3 s.h.**

This course will cover principles of pharmacology as applied to advanced nursing practice. This includes drug effectiveness, mechanism, and interaction. Emphasis will be on the pharmacological action of drugs on specific organ systems and the clinical use of drugs in treatment of disease conditions. Emphasis will be on critical decision making skills in the selection of drug therapy, doses of drugs, routes of administration and preferred therapy. This course focuses on pharmacological implications for the family nurse practitioner in working with individuals across the life span. Prerequisite: NURS 601. Spring, annually and as needed.

NURS 605: *EVOLUTION OF NURSING THEORY* **3 s.h.**

This course focuses on selected aspects of theory development in nursing science. Emphasis is given to the study of epistemological issues related to the evolution of theory in nursing. Varying levels and components of theories are explored. Major strategies for theory development, including concept analysis, synthesis, and theory derivation are analyzed. Students gain experience in critically examining major existing theoretical models. Fall, annually.

NURS 610: *ADVANCED CONCEPTS IN NURSING RESEARCH* **3 s.h.**

This course examines the relationship and contribution of nursing research to the development of nursing science. The growth of research will be traced over the course of the last century, with particular emphasis on the evolution that has occurred since mid-century. Students will be assisted to increase their ability to critically evaluate published research and to make decisions concerning its applicability to practice. Additionally, students will develop a proposal for an individual or group research project which may become the foundational work for the scholarly project/thesis. Prerequisite: NURS 605 or by permission of instructor. Spring, annually and as needed.

NURS 614: *NURSING INTERVENTION WITH FAMILIES* **3 s.h.**

This course examines family theory and its application to advanced nursing practice. Dynamics of family theory are investigated as they relate to current issues affecting today's families. It focuses on established models of family development in analyzing the contemporary family system. This course will provide opportunities for the student to relate family theory to advanced practice of nursing. The student will evaluate the relationship between therapeutic nursing intervention and family health. This course may be taken concurrently with NURS 620, but it is required as a prerequisite to all other clinical nursing courses in the nurse practitioner concentration. Fall, annually.

NURS 615: ADVANCED HEALTH ASSESSMENT 3 s.h.

This course builds upon the basic assessment skills of the nurse. It is designed to augment, refine, and enhance the practitioner's ability to assess the health status of individuals, to recognize deviant and abnormal findings, to evaluate responses to illness, and to identify health risks. The course enables the practitioner to collect a comprehensive health history and perform a complete physical assessment in a systematic and organized manner. Course content emphasizes a holistic approach toward assessment, incorporating the client's response to wellness and illness, sociocultural influences, and health seeking behaviors. Specialized assessment tests and procedures and laboratory test data will be used by the practitioner to uncover client health cues in addition to those identified by questioning and examining. The practitioner's skill in assessing a client's resources, strengths, limitations, and coping behaviors will be intensified. Two lecture and three clinical hours weekly. Prerequisite or co-requisite: NURS 601. Fall, annually and as needed.

NURS 620: CLINICAL DECISION MAKING I 3 s.h.

This course emphasizes clinical data-gathering skills, diagnostic reasoning, and clinical problem-solving for application in NURS 630 and NURS 640 directed toward the management of health problems of clients throughout the lifespan. Critical thinking skills are emphasized and honed and are used to amplify common sense, intuition, and simple reasoning. Emphasis is placed upon the analysis and synthesis of client data for diagnosis and for identification of appropriate nursing and other therapeutic interventions to be used by the advanced practice nurse. Two lecture and three clinical hours weekly. This course is required as a prerequisite to all other clinical nursing courses. Prerequisite: NURS 615. Spring, annually and as needed.

NURS 630: CLINICAL DECISION MAKING II 5 s.h.

This course focuses upon birth through adolescence in regard to health promotion, wellness maintenance, disease prevention, early detection of problems, prompt treatment of acute illness, and support for management and self care during chronic conditions. All dimensions of development and the total health of the child and family are considered. Course theory seeks to expand the practitioner's base of knowledge and understanding while clinical practicum provides an opportunity for the application of learning and the enhancement of decision-making skills. Opportunity is provided for the development of skill in selected therapeutic interventions related to health care of the client from birth through adolescence. The course provides for expansion of knowledge for application in working with clients, families, and colleagues in clinical practice. Collaboration with other health care providers is fostered. Three lecture and six clinical hours weekly. This course must be taken concurrently with NURS 631. Prerequisites: Minimum grade of "B" in NURS 614, 615, and 620. Fall, annually.

NURS 631: CLINICAL DECISION MAKING II: ROLE SEMINAR 1 s.h.

This seminar, a controlled environment for deliberation on clinical situations encountered, explores the role of the practitioner in advanced nursing practice. It provides opportunities for discussion of alternative approaches to diagnosis, advanced nursing, medical, or collaborative management. The seminar will include the discussion of clinical based research questions, client presentations, and effective treatment interventions. Two laboratory hours weekly. This course must be taken concurrently with NURS 630. Prerequisites: Minimum grade of "B" in NURS 614, 615, and 620. Fall, annually.

NURS 640: CLINICAL DECISION MAKING III 5 s.h.

This course focuses upon adults (young, middle-aged, and older) in regard to health promotion, wellness maintenance, disease prevention, early detection of problems, prompt treatment of acute illness, and support for management and self care during chronic conditions. All dimensions of development and the total health of the adult and family are considered. Course theory seeks to expand the practitioner's base of knowledge and understanding while clinical practicum provides an opportunity for the application of learning and the enhancement of decision-making skills. Opportunity is provided for the development of skill in selected therapeutic interventions related to health care of the adult. The course provides for expansion of knowledge for application in working with clients, families, and colleagues in clinical practice. Collaboration with other health care providers is fostered with emphasis upon the coordination and continuity of client care. Three lecture and six clinical hours weekly. This course must be taken concurrently with NURS 641. Prerequisites: Minimum grade of "B" in NURS 614, 615, and 620. Spring, annually.

NURS 641: CLINICAL DECISION MAKING III: ROLE SEMINAR 1 s.h.

This seminar, a controlled environment for deliberation on clinical situations encountered, explores the role of the practitioner in advanced nursing practice. It provides opportunities for discussion of alternative approaches to diagnosis, advanced nursing, medical, or collaborative management. The seminar will include the discussion of clinical based research questions, client presentations, and effective treatment interventions. Two laboratory hours weekly. This course must be taken concurrently with NURS 640. Prerequisites: Minimum grade of "B" in NURS 614, 615, and 620. Spring, annually.

NURS 645: NURSING AND PUBLIC POLICY 3 s.h.

This course examines the implications of health care financing, structuring, labor market trends, and current health care reform proposals for nursing in general and for advanced practice nursing specifically. Additionally, the student will be stimulated to appreciate the critical need for nurses to engage in activities, individually and as members of professional organizations, that will enhance the position of nursing in influencing health care policy and legislation at all levels-local, state, and federal. A pervasive theme throughout the course is the ultimate goal of improving the health care of our citizens. Spring, annually.

NURS 750: INTERNSHIP 6 s.h.

Internship is a supervised clinical experience which provides the opportunity to gain competency in the multiple roles of nurse practitioner practice, including managing clients' health/illness status, monitoring and ensuring quality, organizing work, performing teaching/coaching functions, and protecting and enhancing human dignity. Students function under the guidance of certified nurse practitioners or licensed physicians who have been approved by the department as preceptors. A series of role seminars are held concurrently with clinical experience. Eighteen hours of clinical experience weekly. Prerequisites include all program course work, excluding thesis. Summer, annually and as needed.

NURS 800: THESIS/PROJECT 3-6 s.h.

Students will engage in individual or group research related to an aspect of care relevant to the nurse practitioner profession. A research advisor and committee supervise the scholarly activity. Prerequisites: NURS 605 and NURS 610. Annually.

MASTER OF EDUCATION DEGREE IN SCIENCE EDUCATION

Master of Education Degree in Science Education

College of Education and Human Services Department of Education Graduate Faculty

Professors: W. Barnes, W. Belzer, P. Dalby, S. Harris, T. Morrow, K. Smith, S. Stalker; **Associate Professors:** C. Bering, V. Harry, M. Parker, B. Smith, D. Smith, A. Vega; **Assistant Professors:** J. Beal, R. Carbone, D. Lott, M. McConnell, J. McCullough

Program Objectives

Clarion University has a strong commitment to help teachers and schools improve science experiences for their students. Our courses in science education are exciting, useful, and relevant to elementary, middle, junior high, and senior high school teachers. They are taught in the same style of inquiry and investigation that we encourage teachers to use in their own classrooms. By enrolling in the science education program, teachers can learn to teach investigatively in their own classrooms, to make and use science materials and equipment, to design science curricula, to incorporate the broad principles of science into their own classrooms, and provide leadership in science education.

The graduate program in science education requires a minimum of 30 semester hours of approved course work for completion. Required courses have been kept to a minimum to allow maximum flexibility in tailoring course plans to individual needs and career aspirations. The program is designed to serve in-service teachers of science, as well as prepare graduates to assume positions of science leadership or to pursue doctoral programs in science education.

One track of the program serves self-contained elementary classroom teachers who wish to improve their skills as science teachers. Several courses are available which combine science content and processes, and teachers learn how to apply them to their own classrooms.

Another track serves middle, junior high, and senior high school science teachers. They may use the program to learn about and develop new curricula and teaching methods for their own classrooms and schools. In addition, a large number of graduate science courses are available for those who wish to increase their strength in various content areas.

Other tracks exist for students seeking positions as environmental educators, students seeking science leadership positions upon completion of the master's degree, or students wishing to enter higher education after com-

pleting the graduate program here at Clarion University. Graduates of Clarion's Master of Education in science education program have entered Ph.D. programs in science education at such schools as the University of Georgia, Ohio State University, Pennsylvania State University, the University of Colorado, and others. Graduates of the Clarion program who have continued their education have been most successful and are filling teaching and research positions at colleges and universities across the country.

Admission Requirements

Division of Graduate Studies admission requirements apply with the following additions:

- A baccalaureate degree from an acceptably accredited college or university
- Undergraduate minimum quality-point average is 3.0 or above (on a 4.0 scale)
- Satisfactory scores for the Graduate Record Exam General Test or the Miller Analogies Test
- Three faculty and/or professional recommendations; recommendation forms should document applicant's potential and/or effectiveness in the areas of teaching ability and/or professional performance.
- The applicant should have an undergraduate major in elementary education or secondary education with certification in either of those areas. If the applicant does not meet this requirement, the graduate faculty of the department shall determine existing deficiencies and how they may be met.
- Admission to provisional status may be granted at the discretion of the faculty if the applicant's quality-point average is less than 3.0/4.0. Regular status may be granted upon completion of 12 semester hours of graduate study with a minimum of 3.0/4.0 average.

Degree Requirements

To fulfill the degree requirements for graduation the student must:

- Complete a planned program of 30 semester hours or more with a cumulative quality-point average of 3.0/4.0 or better.
- Pass a written comprehensive examination after completing a minimum of 21 credits.
- Students must complete a planned program, including a minimum of 30 credits selected from the following two general areas:

SCIENCE EDUCATION

With approval of the candidate's advisor, students must elect a minimum of 18 hours of graduate science education courses that should include SCED 502, SCED 538, SCED 540, and SCED 556.

GENERAL ELECTIVES

With approval of the candidate's committee, students may elect 12 hours of graduate courses from the following areas:

- Science Education
- Biology
- Education
- Mathematics
- Reading
- Special Education
- Communication
- Research (0-6 s.h.)

Placement

The M.Ed. in science education is designed primarily to serve teachers such as elementary teachers in self-contained classrooms, elementary, junior high and senior high science teachers, and science supervisors who already have positions. Some use the program to advance to new positions, such as science leaders or computer specialists. Others use the program as a stepping-stone to a higher degree. Among those who utilized the degree to seek a position, placement has been excellent.

Graduate Assistantships

Graduate assistants in science education serve in a variety of roles. They may prepare for and assist in teaching undergraduate classes, direct undergraduate assistants in the Center for Science Education, carry out library research for center projects, and assist in-service programs. Assistantships offer an excellent opportunity to obtain practical experience while completing most requirements for a master's degree in one calendar year. Some in-service teachers utilize a sabbatical leave for this purpose.

All applicants for graduate assistantships must complete the regular admission procedure in order to be considered for an appointment and, following admission, file an application for the graduate assistant position with the Graduate Program Coordinator for Science Education. Applicants for graduate assistantships should submit completed applications by late April for consideration the following fall.

Environmental Education Certification

Clarion University offers a program leading to certification in environmental education. Students in the program learn through courses that are taught using discovery, investigation, and hands-on experiences carried out primarily in the outdoors. The program focuses on the major concepts of ecology and those concepts of the social sciences that apply to the environment. Students also become well versed in the major environmental curricula that are available.

The program is designed to certify elementary and

secondary teachers in environmental education. Individuals completing the program are certified to teach environmental education to students from K-12.

Advisement

Before beginning course work all applicants are interviewed by a member of the science education graduate faculty. The chair of the Science Education Graduate Committee will advise those students who have not yet been admitted and who do not have an advisor.

Cooperative Doctoral Program

Clarion University and Penn State University are cooperating to offer a Ph.D. or D.Ed. in curriculum and instruction at Penn State with an emphasis in science education. The program has two major components. First, it allows up to 45 credit hours of approved graduate work completed at Clarion University in the science education master's degree program, or beyond that degree, to be applied toward a 90 credit-hour minimum program leading to the doctorate in science education at Penn State. Secondly, research may be conducted at Clarion University.

Faculty members at Clarion University hold adjunct graduate faculty status at Penn State, which enables them to serve on students' doctoral committees.

Individuals who want more information about the Cooperative Doctoral Program in Science Education should consult with the Graduate Program Coordinator for Science Education, Department of Education, Clarion University, Clarion, PA 16214-1232, or Graduate Advisor, 165 Chambers Building, Penn State University, University Park, PA 16802.

Physical Facilities

The science education component of the Department of Education is housed within the Peirce Science Center. The William D. Chamberlain Center for Science Education is in Room 220P and functions as a science-education leadership and curriculum center. It contains samples of most modern science curricula, including complete sets of texts and materials for the elementary, middle, junior high school, and senior high school levels and other curriculum materials. The Clarion University Center for Science Education is a resource center for modern K-12 science curricula. The center also functions as a leadership center and a site for conferences and meetings of educators interested in science education.

Peirce Science Center contains laboratories in biology, chemistry, physics, and earth science. A complete planetarium with a 100-seat capacity is attached. The building also contains an animal-aquarium room and a freestanding greenhouse.

The science education program also makes extensive use of McKeever Environmental Learning Center at Sandy Lake, Pennsylvania, and University of Pittsburgh's Pymatuning Laboratory at Lineville, Pennsylvania.

Science Education Courses

- SCED 456:** *ELECTRONICS* **4 s.h.**
The course is intended for the science teacher who has had little or no previous course work in physics or mathematics. The subjects covered include the fundamental laws of electricity and magnetism, alternating current theory, and the theory and practical application of such devices as ammeters, voltmeters, oscilloscopes, vacuum tubes, transistors, power suppliers, amplifiers, and oscillators. Examples of some of these devices will be built in the laboratory, and general procedures for troubleshooting faculty equipment will be illustrated. Summer only, on demand.
- SCED 460:** *SCIENCE CURRICULUM IN THE MIDDLE AND JUNIOR HIGH SCHOOL* **3 s.h.**
A course designed to acquaint students with modern science instruction strategies and curricula for the junior high/middle school levels. Recent developments in curricular objectives, the unique physiological and psychological qualities of middle level students, science content, teaching strategies, and laboratories are stressed. Fall, annually.
- SCED 463:** *ASTRONOMY: OBSERVATION AND FIELD STUDIES* **3 s.h.**
This is a course in the experimental tools and methods useful in astronomy. It is not an encyclopedic survey of astronomy, but concentrates on mastery of important techniques and concepts by a "do-it-yourself" process. It complements courses in descriptive astronomy (ES 200 and 201 and SCED 550) rather than duplicating them, serving much the same purpose as a laboratory in astronomy. The student will build simple telescopes, spectrosopes, and other astronomical instruments.
- SCED 466:** *FIELD PHOTOGRAPHY* **3 s.h.**
This course is designed to teach the student how to use a modern camera and accessories to photograph subjects in the field. Techniques of close-up, telephoto, and wide-angle photography as well as film development, lighting, use of filters and composition will be included. In addition, the student will have a chance to learn and practice techniques for photographing such subjects as small animals, birds, flowers, large animals, and other subjects. Camera and film to be provided by students. Summer, on demand.
- SCED 500:** *SEMINAR* **1-3 s.h.**
Current topics in science education. May be repeated (as topics vary) up to nine credits. On demand.
- SCED 501:** *SEMINAR IN SCIENCE MISCONCEPTIONS* **3 s.h.**
A survey of current literature in the area of science misconceptions. Each student will research a topic and develop interviews and surveys to determine the misconceptions in the area. Fall, odd-numbered years.
- SCED 502:** *INVESTIGATIVE TECHNIQUES AND PROCESS APPROACH TO MODERN SCIENCE CURRICULA* **3 s.h.**
A course designed to enable elementary, middle, and junior high school teachers to use investigative techniques and the process approach in their own classrooms. Investigative techniques will focus on developing skills in science processes such as observing, classifying, formulating hypotheses, collecting and analyzing data, and designing experiments. Experiences with modern elementary and junior high school science curricula are also included. Two lecture and two lab hours. Fall, annually.
- SCED 503:** *SPECIAL TOPICS OF SCIENCE EDUCATION* **1-4 s.h.**
Studies of topical material under the guidance of the instructor. Maximum credit allowable toward graduation: 9 credits. Prerequisites: Permission of the instructor and the student's graduate committee. On demand.
- SCED 505:** *INVESTIGATION IN THE SCIENCES* **3 s.h.**
A survey of types of investigations will be presented. Emphasis will be placed on typical investigations which may be used as models for classroom use. Students will experiment with published experiments within their discipline and at the appropriate grade level as well as design their own. Two hours lecture, two hours laboratory. Fall, even-numbered years.
- SCED 530:** *FIELD BIOLOGY* **3 s.h.**
This field course is designed to acquaint elementary, middle, and secondary teachers with the biological environment outside of the classroom as it pertains to plants and animals, their collection, identification, preservation, and ecology. Activities that are applicable to the public school will be provided. Summers, on demand.
- SCED 531:** *FIELD BOTANY* **3 s.h.**
This course is designed to give elementary, middle, and secondary teachers an understanding of the basic aspects of plant science. Emphasis will be placed upon taxonomy, morphology, and life processes of the flowering and nonflowering plants as they relate to work done in elementary and secondary schools. Two lecture and two lab hours. Summer, on demand.
- SCED 532:** *FIELD ORNITHOLOGY* **3 s.h.**
This is primarily a course on the identification and natural history of birds of this area. The primary teaching methods will be illustrated lectures, identification practice via color slides, and field trips. Prerequisite: Basic Biology. Summers, on demand.
- SCED 534:** *FIELD ZOOLOGY* **3 s.h.**
This field course is designed to acquaint the elementary, middle, and secondary teachers with the biological environment outside the classroom as it pertains to animals, their collection, preservation, identification, and ecology. Activities that are applicable to K-12 schools will be provided. Summer, on demand.
- SCED 535:** *FIELD ECOLOGY* **3 s.h.**
The course familiarizes elementary, middle, and secondary teachers with the relationships between plants and animals and their environment. Field work will be emphasized. Frequent field trips are made to areas of particular ecological interest in Northwestern Pennsylvania. Five field, laboratory and lecture hours. On demand.
- SCED 536:** *CHEMISTRY* **3 s.h.**
This lecture-laboratory course is designed to give elementary, middle, and secondary teachers an understanding of basic chemistry. The chemistry of common experience in the public school is explored and the manipulation of chemical apparatus is given special attention. Two laboratory hours. On demand.
- SCED 537:** *PHYSICS* **3 s.h.**
This lecture-laboratory course is designed to give elementary, middle, and secondary teachers an understanding of basic physics. Areas of concentration are the metric system, properties of matter, mechanics, atomic energy, heat, sound, light, magnetism, and electricity. Particular attention will be provided for the application of these areas to public school sciences. Two lecture and two laboratory hours. On demand.

- SCED 538:** *SCIENCE CURRICULUM* **3 s.h.**
This course is designed to come late in the program when the student will have an adequate background for discussions centered around the various approaches to the teaching of science in the elementary, middle, and secondary schools. A study of the principles of curriculum construction, including curriculum origins, goals, objectives, scope and sequence, and evaluation. Spring, annually.
- SCED 539:** *RESOURCES AND MATERIALS* **3 s.h.**
The course gives teachers experience with literature, equipment, and materials used in teaching science in the school. Physical and human resources from national, state, and local communities will be explored. Students will be given ample opportunity to develop and try out teacher-made resources. On demand.
- SCED 540:** *SUPERVISION OF SCIENCE TEACHING* **3 s.h.**
A course designed to prepare science educators (elementary, middle, junior high, and senior high school teachers) for leadership and supervisory roles in the improvement of science curricula and instruction. Spring, even-numbered years.
- SCED 541:** *SCIENCE SPECIALIST INTERNSHIP IN TEACHING AND SUPERVISION* **1-4 s.h.**
This course is designed to give practical experiences in working with teachers and children as a specialist in science teaching, supervising, and assisting in curriculum work. On demand.
- SCED 550:** *ASTRONOMY* **3 s.h.**
This course deals with the planets and their satellites, including the earth and moon, with comets and meteors, with the sun, the stars and clusters of stars, with the interstellar gas and dust, with the Milky Way, and other galaxies that lie beyond the Milky Way. The fundamental concepts of cosmology and the basic principles of light are also included in the course. Three lecture and/or laboratory hours. On demand.
- SCED 551:** *GEOLOGY* **3 s.h.**
A study of rocks, minerals, and geologic formation as they are related to elementary and secondary school science. Past history of the earth as well as present geologic phenomena are discussed. Fields trips to areas of geologic interest are taken. Two lecture and two field or laboratory work hours. On demand.
- SCED 552:** *GEOMORPHOLOGY* **3 s.h.**
A study of the interaction between humans and the physical environment as it is related to elementary and secondary school science. On demand.
- SCED 553:** *METEOROLOGY* **3 s.h.**
The fundamentals of weather and weather instruments, maps, records, as well as other activities applicable to elementary and secondary school science are stressed. Three lecture and/or laboratory hours. On demand.
- SCED 554:** *RECENT ADVANCES IN SCIENCES* **3 s.h.**
The course acquaints students with significant developments in the field of science that have taken place in the last two decades. This course assumes a background of information in the fundamentals of the biological and physical sciences. Three lecture hours. On demand.
- SCED 555:** *HISTORY OF SCIENCE* **3 s.h.**
A study of the history of science with accent on the way in which broad scientific principles have developed and those who played a part. On demand.
- SCED 556:** *RESEARCH GRANT WRITING FOR SCIENCE EDUCATION* **3 s.h.**
This course covers topics to analyze, critique, and develop a research proposal. Students will study the methodology of research as well as the mechanisms of obtaining external funding for their proposed projects. The students will develop problems, search literature, write rationales, critically evaluate each other's work, and turn in a complete research or funding proposal. Spring, annually.
- SCED 560:** *SCIENCE CURRICULUM IN THE MIDDLE AND JUNIOR HIGH SCHOOL* **3 s.h.**
A course designed to acquaint students with modern science instructional strategies and curricula for the junior high/middle school levels. Recent developments in curricular objectives, the unique physiological and psychological qualities of middle level students, science content, teaching strategies, and laboratories are stressed. Fall, annually.
- SCED 561:** *MODERN ASTRONOMY* **1 s.h.**
This short course covers recent developments in astronomy which are not normally covered in a traditional astronomy course. Topics include stellar, evolution, pulsars, neutron stars, black holes, quasars, and supernovae. Summer, on demand.
- SCED 562:** *TOPICS IN COSMOLOGY* **1 s.h.**
This short course deals in a non-mathematical manner with questions related to the universe as a whole-its beginning, geometry, present state and future development. Topics include the origin of the elements, expansion of the universe, geometry of the universe and observational evidence. Summer, on demand.
- SCED 563:** *DEMONSTRATIONS AND PROJECTS IN ASTRONOMY* **3 s.h.**
Emphasis in this course will be on the selection and preparation of demonstrations and projects in astronomy for teachers of elementary and secondary schools. Summer, on demand.
- SCED 566:** *ADVANCED FIELD PHOTOGRAPHY* **3 s.h.**
This course is designed to teach in-service teachers how to use the advanced aspects of modern SLR 35mm camera and accessories to photograph science subjects in the field. Advanced techniques of close-up, telephoto, and photomacrography, as well as use of advanced depth of field, lighting, and composition will be included. Students also will learn advanced techniques of photographing flora and fauna, geological, astronomical, meteorological, and ecological subjects. Camera and film to be provided by students. Prerequisites: SCED 466 or permission of instructor. Summer, on demand.
- SCED 567:** *SLIDE PROGRAM DEVELOPMENT* **3 s.h.**
This course is normally taken concurrently with SCED 466: Field Photography or SCED 566: Advanced Field Photography. It is designed to be taken by in-service teachers and will teach them how to put together short, single-concept slide programs to be used in their elementary or secondary science classrooms. The Karplus and Generative Models of teaching concepts will be stressed for use with the program. Prerequisites: SCED 466 or SCED 566 or must be taken concurrently, or permission of instructor. Summer, on demand.

- SCED 570:** *LOCAL SCHOOL CURRICULUM DEVELOPMENT IN SCIENCE* **3 s.h.**
This course is designed to assist individual or groups of teachers with sufficient science background to develop, improve, or implement science curricula for the elementary and secondary schools. It will be concerned with the production of curricular materials for actual use and evaluation. Permission of instructor. Each semester. May be repeated (as topics vary) for nine credits.
- SCED 571:** *PROGRAM FOR IMPROVING ELEMENTARY SCIENCE (PIES)* **3 s.h.**
PIES is designed to promote effective science teaching and instructional leadership in science in the elementary school. In-service teachers, through hands-on investigations in the life, physical, and earth sciences, will acquire knowledge of science, increase their skills in using science process skills, and develop positive attitudes toward science. A similar course, SCED 471: Program for Improving Elementary Science, is offered for undergraduate, senior, elementary majors. On demand. Permission of instructor required.
- SCED 572:** *PROGRAM FOR ENHANCING EDUCATIONAL LEADERSHIP IN SCIENCE (PEELS)* **1 s.h.**
PEELS is designed to involve elementary administrator/teacher teams in exemplary science experiences. Teams are instructed in science process skills, effective science teaching strategies, development of science program goals, and the application of science education research to elementary school science programs. Each team will design and implement an action plan which focuses on specific actions for the improvement of science in their own schools. On demand. Permission of instructor required.
- SCED 573:** *CREATIVE INTEGRATION OF SCIENCE IN ELEMENTARY EDUCATION (CISEE)* **3 s.h.**
The CISEE course is designed to help in-service elementary teachers learn how to integrate science content and science-process skills with other subject areas, including reading and language arts, math, social studies, physical education, art, music, and microcomputer education. A strong emphasis is placed on the use of hands-on investigations; teachers are required to design and implement lessons for their own students which demonstrate the integration of science and other elementary curriculum areas. On demand. Permission of instructor required.
- SCED 574:** *SCIENCE AND SOFTWARE FOR ELEMENTARY TEACHERS* **2 s.h.**
This course is designed to help elementary teachers identify, select, and integrate science courseware appropriate for implementation into existing elementary school science curricula. Participants will use exemplary science courseware to introduce, enhance, and reinforce related hands-on science activities. The culminating project for this course is the presentation of action research findings related to the relationships between microcomputers and hands-on elementary school science. On demand. Permission of instructor required.
- SCED 575:** *CAREER ORIENTATION IN SCIENCE AND TECHNOLOGY (COST)* **3 s.h.**
COST is designed to involve middle/junior high teachers in utilizing the skills of community resource people to demonstrate the need for science in many careers-including those not traditionally associated with science. The format of the course follows the COMETS (Career Orientated Modules to Explore Topics in Science) model. Teachers learn where to find science-resource people and how to work with the resource person to present lessons in the classroom. Teachers will be responsible for implementing lessons with a resource person during the course. On demand. Permission of instructor required.
- SCED 576:** *SCIENCE, TECHNOLOGY, AND SOCIETY:: TOPICS FOR TEACHERS* **3 s.h.**
STS is an interdisciplinary course covering topics in biology, earth science, chemistry, and physics. Participants will be involved in studies and hands-on activities such as evaluating science computer software, testing water for chemical and biological agents, and studying high altitude infrared photography. Ethical issues and scientific principles concerning computers, energy, nuclear waste, biotechnology, and others, will be investigated and discussed. Participants will develop curriculum activities for implementation in secondary science. On demand. Permission of instructor required.
- SCED 577:** *MICROCOMPUTERS SCIENCE LABORATORY INTERFACE* **1 s.h.**
This course is designed to instruct elementary and/or secondary science teachers in basic interfacing and interfacing applications for their own classrooms. Course participants construct interfacing materials, set up related science investigations, and analyze data collected from the constructed probes. Course participants also explore possible uses for interfacing equipment in the science curriculum. On demand. Permission of instructor required.
- SCED 578:** *INFORMATION TECHNOLOGY EDUCATION FOR THE COMMONWEALTH (ITEC I)* **3 s.h.**
ITEC I is designed to provide teachers with computer literacy, programming skills, and experiences with exemplary courseware and software. The course is designed specifically for computer novices. Teachers will learn to operate and program microcomputers while developing skills needed for teaching their students to use microcomputers for classroom applications. The course also prepares teachers to evaluate courseware and software appropriate for use in their school curriculum. On demand. Permission of instructor required.
- SCED 579:** *INFORMATION TECHNOLOGY EDUCATION FOR THE COMMONWEALTH (ITEC II)* **3 s.h.**
Provides K-12 educators with intermediate-level competencies to effectively integrate microcomputer courseware, hardware, and related microprocessor technology into the teaching and learning process. Instructional theory for the design and evaluation of solutions to problems of learning, and using computer technology as a tool, will also be emphasized in the course. Students will complete a computer-generated portfolio of related lesson plans, handouts, transparencies, etc. On demand. Permission of instructor required.
- SCED 585:** *PLANETARIUM OPERATION AND MANAGEMENT* **3 s.h.**
An introduction to the techniques of operation and maintenance of planetarium projectors. Opportunities are provided for writing and presenting programs at various levels of instruction. The use of auxiliary projectors, the production of audiovisual materials, multimedia displays and live versus programmed presentations are emphasized. Prerequisite: ES 200 and 201 or consent of instructor. On demand.
- SCED 600:** *RESEARCH PROJECT IN SCIENCE EDUCATION* **1-3 s.h.**
With the approval of his or her advisor a student may research a selected topics related to the teaching of elementary and/or secondary science. Permission of instructor. Each semester. Maximum credits allowable toward graduation: 9 credits.

MASTER OF SCIENCE DEGREE IN SPECIAL EDUCATION

Master of Science Degree in Special Education

College of Education and Human Services

Department of Special Education and Rehabilitative Sciences

Graduate Faculty

Professors: R. Feroz, B. Huwar; **Associate Professors:** G. Clary, P. Gent, L. Gurecka, J. Krouse; **Assistant Professors:** E. Hider, M. Kilwein, A. Stearns, L. Turner, R. Sabousky, S. Sentner

Program Objectives

The mission of the Master of Science program within the Department of Special Education and Rehabilitative Sciences is to provide opportunities:

- to update, broaden, and refine the skills and knowledge base of the veteran professional in designing, implementing, and evaluating instruction and services for individuals with disabilities;
- to extend knowledge and skills in research, administration, leadership, and the organization of service delivery;
- to analyze technically complex and current issues within the field; and
- to prepare for more advanced studies and careers in special education and rehabilitative sciences.

The graduate program in special education is accredited by the National Council for the Accreditation of Teacher Education, the Council for Exceptional Children and the Pennsylvania Department of Education.

SPECIAL EDUCATION CONCENTRATION

The special education area of concentration is designed primarily for students whose career interests are in special education services and programs within educational agencies and institutions of higher education. Within the special education concentration area various options are offered. Students who presently hold a Pennsylvania special education teaching certificate take a core of 27 required graduate credits and in addition pursue 6 credits individually selected by the student in consultation with their advisor.

Students who presently hold a bachelor's degree from an accredited program may pursue the master's degree while completing additional course work leading to Penn-

sylvania certification in the area of special education. The student's advisor will individually determine the specific course work for certification after a review of the student's past course work and experience.

REHABILITATIVE SCIENCES CONCENTRATION

The rehabilitation sciences area of concentration is designed for students whose career interests are in the area of community-based social, vocational, recreational, and personal management rehabilitation services in the areas of developmental disabilities, gerontology, and substance abuse. Within this concentration, students will take a core of 21 required graduate credits, and in addition, pursue an additional 12 credits individually selected by students in consultation with their advisors. Unless the applicant submits documentation of prior experience in the field through employment or practicum experience, six credits of REHB 495 must be taken in addition to the 33 required credits for the master's degree to fulfill the field experience component.

Admission Requirements

Clarion University's general admission requirements apply, with the following additions:

- A baccalaureate degree from an acceptably accredited college or university
- Undergraduate minimum quality-point average is 3.0 or above (on a 4.0 scale)
- Satisfactory scores for the Graduate Record Exam General Test or the Miller Analogies Test
- Three faculty and/or professional recommendations; recommendation forms should document applicant's potential and/or effectiveness in the areas of teaching ability and/or professional performance.

Degree Requirements

In addition to the general requirements of the Division of Graduate Studies at Clarion University, students shall meet the following requirements:

- Students must complete a planned program of study approved by their advisors within one of the areas of concentration including a minimum of 33 credits.
- Students contemplating more advanced studies after completing the master's degree or contemplating careers that involve research may elect with the approval of their advisor a thesis project (SPED 590). Students electing SPED 590 and completing the thesis requirements are exempted from the SPED 598 and SPED 599 requirement.

The purpose of electives is to provide flexibility within the program so students can further develop their knowledge, skills, and expertise in individual areas of career interest and to enhance their career options. The choice of electives is, therefore, not limited to SPED or REHB courses. With the prior approval of the student's advisor, the student may choose elective courses from other departments or institutions of higher education. Note: In accordance with Clarion University residency requirements, no more than a maximum of 30% of the total graduate credits may be transferred from other institutions.

Special Education Concentration

REQUIRED CORE 27 credits

<i>ED 520: Introduction to Research</i>	3 s.h.
<i>SPED 500: Contemporary Issues in Special Education</i>	3 s.h.
<i>SPED 520: Role Development with Parents</i>	3 s.h.
<i>SPED 532: Policy and Practice in Special Education</i>	3 s.h.
<i>SPED 535: Advanced Methods for Individuals with Severe Disabilities</i>	3 s.h.
or	
<i>SPED 536: Advanced Methods for Individuals with Mild/Moderate Disabilities</i>	3 s.h.
<i>SPED 567: Seminar in Advanced Applied Behavior Analysis</i>	3 s.h.
<i>SPED 580: Special Reading Instruction</i>	3 s.h.
<i>SPED 598: Research Project Development</i>	3 s.h.
<i>SPED 599: Field-Based Investigation</i>	3 s.h.

ELECTIVES 6 credits

<i>SPED 505: Concepts of Intelligence</i>	3 s.h.
<i>SPED 530: Learning Disabilities</i>	3 s.h.
<i>SPED 540: Behavior Disorders</i>	3 s.h.
<i>SPED 562: Service Learning</i>	3 s.h.
<i>SPED 590: Special Projects</i>	3 or 6 s.h.
<i>SPED 596: Contemporary Education Practices and Directions</i>	3 s.h.
<i>SPED 597: Collaboration and Cooperation: Improved Teaching and Learning Outcomes</i>	3 s.h.
<i>SPED 415: Instructional Development and Strategies for Individuals with Mild/Moderate Disabilities</i>	3-6 s.h.
<i>SPED 420: Instructional Development and Strategies for Individuals with Severe/Profound Disabilities</i>	3-6 s.h.
<i>SPED 425: Behavior Management in Special Education Settings</i>	3 s.h.
<i>REHB 405: Substance Abuse</i>	3 s.h.
<i>REHB 410: Prevention and Treatment of Substance Abuse</i>	3 s.h.

<i>REHB 545: Rehabilitation: Philosophy and Principles</i>	3 s.h.
<i>REHB 565: Seminar on Rehabilitative Service Delivery Systems</i>	3 s.h.

A maximum of six credits from the 400-level courses listed above can be taken for graduate credit with special permission. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit.

Rehabilitative Sciences Concentration

REQUIRED CORE 21 credits

<i>ED 520: Introduction to Research</i>	3 s.h.
<i>REHB 545: Rehabilitation: Philosophy and Principles</i>	3 s.h.
<i>REHB 565: Seminar on Rehabilitative Service Delivery Systems</i>	3 s.h.
<i>REHB 575: Administering Rehabilitation Delivery Systems</i>	3 s.h.
<i>REHB 580: Intervention Strategies in Rehabilitative Sciences</i>	3 s.h.
<i>REHB 598: Research Project Development</i>	3 s.h.
<i>REHB 599: Field Based Investigation</i>	3 s.h.

ELECTIVES 12 credits

<i>REHB 405: Substance Abuse</i>	3 s.h.
<i>REHB 410: Prevention and Treatment of Substance Abuse</i>	3 s.h.
<i>REHB 510: Group Process in Rehabilitation</i>	3 s.h.
<i>REHB 537: Lifestyle and Career Development</i>	3 s.h.
<i>SPED 500: Contemporary Issues in Special Education</i>	3 s.h.
<i>SPED 505: Concepts of Intelligence</i>	3 s.h.
<i>SPED 520: Role Development with Parents</i>	3 s.h.
<i>SPED 530: Learning Disabilities</i>	3 s.h.
<i>SPED 535: Advanced Methods for Individuals with Severe Disabilities</i>	3 s.h.
<i>SPED 536: Advanced Methods for Individuals with Mild/Moderate Disabilities</i>	3 s.h.
<i>SPED 540: Behavior Disorders</i>	3 s.h.
<i>SPED 567: Seminar in Advanced Applied Behavior Analysis</i>	3 s.h.
<i>SPED 590: Special Projects</i>	3 or 6 s.h.

A maximum of six credits from the 400-level courses listed above can be taken for graduate credit with special permission. Please note that 400-level courses taken for undergraduate credit cannot be repeated for graduate credit.

Graduate Assistantships

The Department of Special Education and Rehabilitative Sciences regularly awards a number of graduate assistantships. Assistantships in special education and rehabilitative sciences serve a variety of purposes. Graduate assistants (GAs) assist the professors in developing course materials and resources; evaluating the skills of undergraduates; carrying out literature searches; and supervising and assisting undergraduates in the computer lab. Graduate assistantships not only provide unique experiences within the field, but also are an opportunity for the student to pursue advanced training with financial support.

Applicants for a graduate assistantship must have completed all program application requirements and have been admitted in full standing to the program. A separate GA application must then be submitted to the Department of Special Education and Rehabilitative Sciences. All applications for GAs should be submitted by the beginning of February to ensure consideration for the following academic year.

Note: Graduate students who are completing a student teaching requirement as a part of state certification requirements or other internship or apprenticeship may not hold a graduate assistantship during the semester of their student teaching.

Certification Requirements

For students already holding Pennsylvania Instructional Level I certification in special education or its equivalent and the requisite years of creditable teaching experience, successful completion of the master's program can lead to Pennsylvania Instructional Level II certification. Note: It is the responsibility of the student holding a special education certificate from another state to ensure the certificate is equivalent to the Pennsylvania Instructional Level I certificate. Your advisor can assist you in this determination.

For students not already certified in special education but holding a bachelor's degree from an accredited program and wishing to become certified in special edu-

cation while continuing their graduate studies, an individual course of study leading to both certification and the graduate degree is developed by the student's advisor with consideration for the student's background of education and experience in conjunction with state and program requirements.

All courses in the graduate program are approved for Act 48 continuing education credits.

Physical Facilities

The Department of Special Education and Rehabilitative Sciences is housed in a two-story wing of Stevens Hall on the Clarion Campus. In addition to the modern classrooms, an array of instructional support technology is available.

In addition to the numerous computer labs across the campus, there is a computer lab in Stevens Hall and another in the Department of Special Education and Rehabilitative Sciences. In the lab, students have access to a variety of instructional and management software along with IBM and MAC hardware and adaptive communication devices for computer and stand-alone devices. Students have access to mainframe computer support through the campus systems, and through the department, students also have access to computer networks such as SpecialNet and PENN*LINK.

The department maintains ongoing cooperative relations with numerous school districts, Intermediate Units, and rehabilitation programs in the region, all of which are available to assist in providing a wide array of field opportunities.

Release of Data from M.S. Thesis-Publication Policy

In accordance with professional ethics, any information from master's research should be published or otherwise released only in conjunction with the student's advisor. Publications resulting from research done at Clarion University shall give appropriate credit to persons involved in the research, to Clarion University, and to any granting agencies which supported the research.

Special Education Courses

A maximum of six credits from the 400-level courses listed below can be taken for graduate credit with special permission. 400-level courses taken for undergraduate credit cannot be repeated for graduate credit.

SPED 415: *INSTRUCTIONAL DEVELOPMENT AND STRATEGIES FOR INDIVIDUALS WITH MILD/MODERATE DISABILITIES* **3 s.h.**

Participants engage in the process of individualizing instruction for individuals with mild/moderate disabilities, including: designing basic instructional sequences using behavioral objectives; matching media, learner, and goal characteristics; identifying appropriate instructional strategies; and evaluating the effectiveness of instruction. Multicultural education is addressed. Prerequisites: SPED 320; ELED 323 and 324 [rehabilitative science majors exempted]. Each semester.

SPED 418: *EXCEPTIONALITIES IN THE REGULAR CLASSROOM* **3 s.h.**

This course is designed to prepare students to deal with the nature and needs of the exceptional person in a regular classroom. Contemporary methods of identification, services for the exceptional individual, and legal aspects of the least restrictive environment are examined. Each semester.

SPED 420: INSTRUCTIONAL DEVELOPMENT AND STRATEGIES FOR INDIVIDUALS WITH SEVERE/PROFOUND DISABILITIES 3 s.h.

Participants engage in the process of individualizing instruction for individuals with severe/profound disabilities, including designing basic instructional sequences using behavioral objectives; matching media, learner, and goal characteristics; identifying appropriate instructional strategies; and evaluating the effectiveness of instruction. Prerequisites: SPED 320; ELED 323 and 324 (rehabilitative science majors exempted). Each semester.

SPED 425: BEHAVIOR MANAGEMENT 3 s.h.

Participants acquire knowledge and skills related to contemporary curricular innovations in educational programs for individuals with disabilities with emphasis on sociocultural implications of changing curricular practices and the new instructional media and technology. Prerequisites: SPED 320 and 345; ELED 323 and 324 (rehabilitative science majors exempted). Each semester.

SPED 500: CONTEMPORARY ISSUES IN SPECIAL EDUCATION 3 s.h.

Participants engage in problem-centered analyses and investigations, and in determination of responses relative to the contemporary issues confronting special education.

SPED 505: CONCEPTS OF INTELLIGENCE 3 s.h.

Participants engage in an extensive study of the nature of cognition, traditional and contemporary, with emphasis on the development of a paradigm having relevance to the educational process.

SPED 520: ROLE DEVELOPMENT WITH PARENTS 3 s.h.

Participants acquire knowledge and skills in working with and involving parents to maximize developmental and learning opportunities for their children with disabilities, and in responding to the unique challenges confronting families of children with disabilities.

SPED 530: LEARNING DISABILITIES 3 s.h.

Participants acquire knowledge and skills for designing diagnostic/prescriptive programs in perceptual-motor, cognitive, linguistic, academic, social, and career domains for individuals with specific learning disabilities.

SPED 532: POLICY AND PRACTICE IN SPECIAL EDUCATION 3 s.h.

The delivery of special education is influenced by many factors other than good teaching. Compliance with federal guidelines, ever-changing budgets, and political climates continue to act on the delivery of special education. In order for our graduate students to be able to grow as professionals, they will need to be aware of these forces and how they interact with special education policy and service delivery.

SPED 535: ADVANCED METHODS FOR INDIVIDUALS WITH SEVERE HANDICAPS 3 s.h.

Participants acquire knowledge and skills related to the design, implementation, and evaluation of instructional interventions for individuals with severe/profound disabilities.

SPED 536: ADVANCED METHODS FOR INDIVIDUALS WITH MILD/MODERATE HANDICAPS 3 s.h.

Participants acquire knowledge and skills related to the design, implementation, and evaluation of instructional interventions for individuals with mild/moderate disabilities.

SPED 540: BEHAVIOR DISORDERS 3 s.h.

Participants engage in the study of maladaptive behavior in individuals with emphasis on current definitions, classification systems, major etiological perspectives, and contemporary interventions.

SPED 562: SERVICE LEARNING 3 s.h.

The course provides an overview of service-learning as a teaching methodology. History, legislation, and theory relevant to service learning is presented. Students learn the components and standards of service-learning. Students plan and implement service-learning projects relative to these. Students also learn how to assess service-learning projects, meet curricular and learner needs through service-learning, and develop community partners. Literature addressing the effectiveness of service-learning as a teaching tool and the relationship of service-learning to the educational reform movement will be examined.

SPED 567: SEMINAR IN ADVANCED APPLIED BEHAVIOR ANALYSIS 3 s.h.

This seminar examines contemporary theory research, and practice in applied behavior analysis with particular emphasis given to applications in the fields of special education and rehabilitative sciences. Prerequisite: SPED 425 or equivalent.

SPED/CSD 575: AUGMENTATIVE AND ALTERNATE COMMUNICATION 3 s.h.

This course is designed to introduce the student to various augmentative/alternative communication systems prevalent in the field. Current and comprehensive information relative to type of disorder, diagnosis, and treatment will be discussed. An emphasis will be placed on the application of unique criteria in diagnostics and the administration of competent and flexible management strategies in rehabilitation. Fall, annually.

SPED 580: SPECIAL READING INSTRUCTION 3 s.h.

This course is designed to provide in-service and pre-service professionals with the knowledge and skills to serve students with mild/moderate reading disabilities. Individuals taking the course will assimilate characteristics of identified students, assessment processes and alternative interventions.

SPED 590: SPECIAL PROJECTS 3 or 6 s.h.

Participants engage in either scholarly or applied research related to the education of children and youth with disabilities under the supervision of a faculty member. For those participants electing the thesis option, SPED 590 shall be taken in two semesters of three credits each. During the first semester the participant is required to submit an approved proposal. During the second semester the participant implements the research and completes the project.

SPED 596: CONTEMPORARY EDUCATION PRACTICES AND DIRECTIONS 3 s.h.

This course saliently provides the philosophical and pragmatic basis for the rationale for change in contemporary education. Legislation, litigation, and research within the profession provide the foundation for understanding why the profession must explore innovative strategies for improving the educational outcomes of all children. Terminologies which dominate professional dialogue are explored and studied to separate dogma from substance. Learner characteristics, which are indicative of the diversity naturally present in society, are addressed relative to implications in teaching and learning.

- SPED 597:** *COLLABORATION AND COOPERATION: IMPROVED TEACHING AND LEARNING OUTCOMES* **3 s.h.**
 This course is intended to improve the teaching and learning outcomes in basic education by focusing on collaboration and cooperative-education processes and teaching methodologies. The development of strategies for promoting professional and community collaborations established in SPED 596: Contemporary Education Practices and Directions, is continued in this offering. Teaching models and methods facilitative to encouraging and maintaining collaborative and cooperative-educational practices extend the skills of professional educators in appropriately serving the educational needs of an increasingly diverse learning audience. Prerequisite: SPED 596 or approval of instructor.
- SPED 598:** *RESEARCH PROJECT DEVELOPMENT* **3 s.h.**
 Under faculty supervision, students will identify a researchable problem, establish a departmental committee, conduct literature reviews, develop a research plan, and obtain all necessary committee, Institutional Review Board, school/agency approvals for conducting a research project within their area of professional interest. Prerequisite: ED 520. Each semester.
- SPED 599:** *FIELD-BASED INVESTIGATION* **3 s.h.**
 This course represents the culminating experience in the master's program in special education and requires participants to systematically integrate and apply knowledge and skills developed throughout the program. Under faculty supervision, students conduct a research project and report results in a forum open to special education faculty and graduate students. Prerequisites: SPED 598. Each semester.

Rehabilitative Sciences Courses

A maximum of six credits from the 400-level courses listed below can be taken for graduate credit with special permission. 400-level courses taken for undergraduate credit cannot be repeated for graduate credit.

- REHB 405:** *SUBSTANCE ABUSE* **3 s.h.**
 Participants engage in the study of the physiological and psychological implications of drug or alcohol abuse, over-medication, and drug dependence with emphasis on the processes of intervention, advocacy, treatment, and prevention. Fall, annually.
- REHB 410:** *PREVENTION AND TREATMENT STRATEGIES IN SUBSTANCE ABUSE* **3 s.h.**
 Participants engage in the study of societal pressures, attempts to prevent substance abuse, and treatment strategies along with comparative analysis of efficacy. Prerequisite: REHB 405. Spring, annually.
- REHB 510:** *GROUP PROCESS IN REHABILITATION* **3 s.h.**
 Participants engage in the study of group development, dynamics, theory, leadership styles, participant roles, techniques, and evaluation of effectiveness as applied to rehabilitative services contexts.
- REHB 537:** *LIFESTYLE AND CAREER DEVELOPMENT* **3 s.h.**
 Participants engage in the analysis of economic, social, and psychological factors which define the context of educational, vocational, and personal decision-making; decision-making related to vocational development; the role of information in facilitating decision-making; and the varieties of information, resources, and types of access available.
- REHB 545:** *REHABILITATION: PHILOSOPHY AND PRINCIPLES* **3 s.h.**
 Participants engage in the analysis of the values, assumptions, and the principles underlying theories of rehabilitation and their relation to the goals and objectives of rehabilitation programs.
- REHB 565:** *SEMINAR ON REHABILITATIVE SERVICE DELIVERY SYSTEMS* **3 s.h.**
 Participants explore the continuum of human service delivery systems, with special focus on aging, mental retardation, and substance abuse. History and student professional experiences are considered in addition to current information and trends to identify problems and opportunities for making systems more responsive to consumer needs.
- REHB 567:** *SEMINAR IN ADVANCED APPLIED BEHAVIOR ANALYSIS* **3 s.h.**
 This seminar examines contemporary theory, research, and practice in applied behavior analysis with particular emphasis given to applications in the fields of special education and rehabilitative sciences. Prerequisite: SPED 425 or equivalent.
- REHB 575:** *ADMINISTERING REHABILITATION DELIVERY SYSTEMS* **3 s.h.**
 Participants engage in the study of the business and personnel aspects of functioning in and managing human service delivery systems, including organization, operations, and management relative to legal, economic, and personnel standards and practice.
- REHB 580:** *INTERVENTION STRATEGIES IN REHABILITATIVE SCIENCES* **3 s.h.**
 Participants review and practice a variety of common clinical intervention techniques used by professionals in mental retardation, gerontological, and substance abuse treatment. These include creative and expressive techniques (e.g., art, music, drama, recreation, horticulture), behavioral interventions (e.g., relaxation, systematic desensitization, contracts), and didactic group and individual work.
- REHB 598:** *RESEARCH PROJECT DEVELOPMENT* **3 s.h.**
 Under faculty supervision, students will identify a researchable problem, establish a departmental committee, conduct literature reviews, develop a research plan, and obtain all necessary committee, Institutional Review Board, school/agency approvals for conducting a research project within their area of professional interest. Prerequisite: ED 520. Each semester.
- REHB 599:** *FIELD-BASED INVESTIGATION* **3 s.h.**
 This course represents the culminating experience in the master's program in special education and requires participants to systematically integrate and apply knowledge and skills developed throughout the program. Under faculty supervision, students conduct a research project and report results in a forum open to special education faculty and graduate students. Prerequisite: REHB 598. Each semester.

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ROBERT CARLSON, M.Ed.	Director of Athletics
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BARRY MORRIS, Ph.D.	Director of Residence Life
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JOHN POSTLEWAIT, Ph.D.	Director, Alcohol and Drug Education/Training
DAVID TOMEO, M.A.	Director of University Centers
HAROLD WASSINK, M.A.	Coordinator of Student Activities

Graduate Faculty

Year in parentheses indicates year of appointment to faculty

- CAROLE J. ANDERSON**, (1990), Ph.D., Professor, Administrative Science
Clarion University, B.S., M.B.A.; Kent State University, Ph.D.
- ROBERT BALOUGH**, (1981), Ph.D., Director, MBA Program, Professor, Economics
Northern Illinois University, B.A., M.A., Ph.D.
- WILLIAM S. BARNES**, (1984), Ph.D., Professor, Biology
Marietta College, B.A.; University of Massachusetts, Amherst, Ph.D.
- JACQUELINE BAUMAN-WAENGLER**, (1991), Ph.D., Associate Professor, Communication Sciences and Disorders
Colorado State University, B.S.; University of Colorado, M.A., Ph.D.
- JON A. BEAL**, (1998), Ph.D., Assistant Professor, Mathematics
Pittsburg State University, B.S., M.A.; Oklahoma State University, Ph.D.
- WILLIAM R. BELZER**, (1982), Ph.D., Professor, Biology
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Communication Sciences and Disorders	39	Full-Time Status	8

Grading System	9	Policies and Procedures	7
Graduate Management Admissions Test (GMAT)	5	Pymatuning Laboratory of Ecology	20
Graduate Record Examination (GRE)	5	Quality-Point Average (also see individual programs for requirements)	8
Health Services	14	Reading	47
History, University	2	Courses in	49
Housing	15	M.Ed. in	47
In Progress Grades	10	Specialist Certification	47
Incomplete Grades	10	Refunds	13
Instructional Technology Specialist Certificate	35	Rehabilitative Sciences	82
Insurance	14-15	Requirements	
International Students	6	Admission	5
Internships	(See individual programs)	Degree	(See individual programs)
Library	13	Research	10
Library Science	57	Residency	8
Certificate of Advanced Studies	58	Responsibility, Student	10
Courses in	61	Rural Librarianship, Center for the Study of	59
Master of Science in	57	School Library Media Certificate	58
School Library Media Certification	58	Science Education	75
Loans	13	Cooperative Doctoral Program	76
Management, Courses in	30	Courses in	77
Marketing, Courses in	31	Environmental Education Certification	76
Master of Business Administration	25	Master of Education in	75
Liberal Arts Pre-Professional Option	27	Special Education and Rehabilitative Sciences	81
Professional Accountancy	26	Courses in	83
Course of Study	25	Special Certification	83
Master of Science		Student Affairs, Office of	88
in Biology	17	Students	
in Communication Education and Mass Media Technology	33	International	6
in Communication Sciences and Disorders	39	Full-Time Status	8
in Library Science	57	Non-Degree	5
in Nursing	69	Non-Resident	12
in Special Education	81	Resident	12
Mathematics	65	Student Support Services Program	12
Courses in	66	Test of English as a Foreign Language (TOEFL)	6
Master of Education in	65	Thesis (also see individual program)	10
Miller Analogies Test	5, 58	Transcripts	5, 12
Mission		Transfer Credit (also see individual programs)	8
Clarion University	1	Tuition/Fees	12
Graduate Studies	2	International	12, 15
Non-Degree Students	5	Non-Resident	12
Nondiscrimination on Basis of Disability	10	Resident	12
Nursing	69	Venango Campus	3
Courses in	72	Veterans	13
Master of Science in	69	Vision, Clarion University	1
Parking	15	Withdrawals	9
Placement	(See individual programs)		