The Graduate Curriculum Committee (GCC)
Meeting Minutes
Wednesday, March 20, 2013

Regular Members Present:
Jim Decker (Chair)
Bob Thompson (Vice Chair)
Carol Brown
Amy Carr-Richardson
Hamid Fonooni
Will Forsythe
Rich Franklin
Linda Mayne
Ravi Paul

Regular Members Excused:
None

Ex-Officio Members Present:
Meaghan Johnson and Linner Griffin

Ex-Officio Members Excused:
None

Academic Program Planning and Development:
Kimberly Nicholson

Guests:
Brody School of Medicine: Daniel Goldberg and Lloyd Novick
College of Education: Crystal Chambers, John Harer and Vivian Mott
College of Fine Arts and Communication: Laura Prividera, Sachiyo Shearman and Deborah Thomson
Thomas Harriot College of Arts and Sciences: Terry West

Actions of Committee:

I. Call to Order

1. **Report on Graduate Council (GC) Actions**
   The GC has not met since the last GCC meeting, however the GC minutes from the 02-06-13 meeting were read at the 03-19-13 Faculty Senate (FS) meeting. This set of minutes contained the proposed standard operating procedure (SOP) developed to help facilitate the 5000-level policy approved last year by the chancellor. Chair Kain of the University Curriculum Committee (UCC) played a role in the development of this SOP as a collaborative effort. FS senators discussed and voiced their opinions regarding the need for undergraduate and graduate objectives within 5000-level courses that include undergraduate students. The FS made a motion, which passed, to provide formal advice against the split objectives (undergraduate and graduate) within these courses. It is the opinion of the FS that undergraduate objectives should not be included in graduate-level courses. This formal advice regarding the 02-06-13 GC minutes will now move forward to the chancellor as a FS resolution. This sequence of events

may have a direct impact on packages that include 5000-level courses with two sets of objectives. The FS will have a copy of the SOP at their next meeting with an anticipated report from the UCC.

2. **The 03-06-13 GCC minutes were approved electronically and forwarded to the Graduate Council for agenda placement**

II. Brody School of Medicine, , Department of Public Health – concurrent submission with Item III

Proposal of New Course: MPH 6150

Approved as amended

(1.) Revise justification
(2.) Revise course description
(3.) Revise course credit
(4.) Revise changes in degree hours of your programs
(5.) Revise course objectives
(6.) Revise assignments and grading
(7.) Revise marked catalog copy

III. Brody School of Medicine, Department of Bioethics and Interdisciplinary Studies – concurrent submission with Item II

Proposal of New Course: HUMS 6150

Approved as amended

(1.) Revise justification
(2.) Revise course description
(3.) Revise course credit
(4.) Revise affected degrees or academic programs, other than your programs
(5.) Revise course objectives
(6.) Revise assignments and grading
(7.) Revise marked catalog copy

IV. College of Education, Department of Library Science

Prerequisite Revision of Existing Course(s): LIBS 6014, 6018, 6026, 6031, 6345

Approved as amended

(1.) Replace "P/C: LIBS 6010; or consent of chair" with "P/C: LIBS 6010 and consent of chair" for courses LIBS 6014, 6018, 6026, 6031

Deletion of Existing Course(s): LIBS 7010, 7981, 7982, 7983, 7991, 7992, 7995, 7996

Approved as amended

Revision of Existing Degree(s): MLS

Approved as amended

(1.) The unit asked to notify Dr. Susan Ganter of MLS revision and the impact this will have on add-on licensure (077) for students.

Deletion of Existing Licensure: North Carolina School Media Support Supervisor Licensure

Approved as amended

V. College of Fine Arts and Communication, School of Communication

Revision of Existing Course: COMM 6240

Approved as amended

(1.) Revise method of delivery
(2.) Revise justification
(3.) Revise changes in degree hours of your programs
(4.) Revise course objectives

VI. College of Fine Arts and Communication, School of Communication

Proposal of New Certificate: Certificate in Health Communication

Approved as amended

(1.) Dr. Thompson advised the unit that they will need to submit their new certificate request to the Educational Policies and Planning (EPPC) committee following GC approval and that there will not be an available EPPC meeting until the fall.
(2.) Dr. Griffin confirmed that unlike Distance Education (DE) degrees, there is no appendix submission requirement for DE certificates.
(3.) Revise the marked catalog copy and #2 and #4of the proposal document to reflect that students currently enrolled in the MA in communication are not eligible to earn the certificate in health communication
(4.) Remove the reference in #14 to the ability to complete the certificate in 15 weeks

Prerequisite Revision of Existing Courses: COMM 6210, 6220, 6221, 6224, 6226, 6230, 6240

Approved as amended

(1.) In all courses presented for revision, replace "P: Admission to MA in communication or graduate certificate, or consent of graduate program director." With "P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director."

VII. College of Education, Department of Higher, Adult and Counselor Education

Proposal of New Courses: LDHE 7501, 8070, 8080

Approved as amended

(1.) Revise method of delivery (LDHE 7501, 8070, 8080)
(2.) Revise justification (LDHE 7501, 8070, 8080)
(3.) Revise course description (LDHE 7501, 8070, 8080)
(4.) Revise course credit (LDHE 8070, 8080)
(5.) Revise changes in degree hours of your program (LDHE 8070, 8080)
(6.) Revise course objectives (LDHE 8070, 8080)
(7.) Revise course assignments and grading (LDHE 7501, 8070)
(8.) Revise marked catalog copy (LDHE 7501, 8070, 8080)

(9.) Dr. Griffin asked the unit to be sure to coordinate with the Department of Educational Leadership when they resubmit their additional curriculum requests in the fall, as they involve the doctor of education in educational leadership (EdD).

VIII. College of Human Ecology, Department of Child Development and Family Relations – postponed to the first available agenda in the fall

There were no faculty from this unit in attendance at the GCC meeting to present the package.

Proposal of New Course: CDFR 6100

Postponed to the fall

Prerequisite Revision of Existing Course: CDFR 7409

Postponed to the fall

IX. Thomas Harriot College of Arts and Sciences, Department of Biology

Renumbering and Revision of Existing Course(s): BIOL 5800 (to 6240), BIOL 5810 (to 6242), BIOL 5821 (to 6244), BIOL 5400, 5401 (to 7400, 7401)

Approved as amended

(1.) Revise requested action (BIOL 6242)
(2.) Revise course description (BIOL 6240, 6242, 6244)
(3.) Revise changes in degree hours of your programs (BIOL 6240; 6242; 6244; 7400, 7401)
(4.) Revise affected degrees or academic programs, other than your programs (BIOL 6240; 6242; 6244; 7400, 7401)
(5.) Revise course objectives (BIOL 6240, 6242. 6244)
(6.) Revise course topic outline (BIOL 6240; 7400, 7401)
(7.) Revise marked catalog copy (BIOL 6240; 6242; 6244; 7400, 7401)

Revision of Existing Degrees: MS in Molecular Biology and Biotechnology

Approved as amended

X. Old Business

Discussion of proposed memorandum to accompany the 03-06-13 GCC minutes

The final version of the memorandum was drafted by the committee

XI. New Business

None

Marked Catalog Copy:

II. Brody School of Medicine

Department of Public Health

http://www.ecu.edu/cs-acad/grcat/coursesMPH.cfm

MPH: Public Health

6000. Public Health Practice (3)
Foundation for public health administration. Introduces MPH degree program. Applied focus on public health problems, issues, and resources of eastern North Carolina. Describes how empirical assessment of population health status informs managerial decision-making and describes the organization of the public health infrastructure. Overview range of practice in public health and of tools and resources for health improvement.

6002. Ethics and Law in Public Health (3)
P: MPH 6000 or consent of instructor. Core issues and skills for public health administration and practice. Focuses on public health law, ethics, legislation, media relations, human services management, and emergency preparedness.

6003. Occupational Health (3)
Assessment of occupational health problems and risk factors focusing on analyzing and reducing health hazards in the workplace.

6005. African-American Health (3)
Comprehensive, holistic, and sociocultural perspective focusing on national, regional, state, county and local African-American health and health disparity issues leading toward developing public health interventions.

6006. Making Sense of Data (3)
Interpretation and use of public health data. Overview of public health data management and decision making skills by the use of real life examples.

6007. Global Public Health: A Global Perspective (3)
Explores the issues related to the fields of medical anthropology and public health leading toward developing global health interventions.

6008. Ethnic Health and Health Disparities (3)
Explores the issues related to ethnic health and health disparities, leading toward developing new public health intervention programs.

6009. Capstone Experience in Ethnic Health and Health Disparities (3)
P: MPH 6005, 6007, 6008; or consent of instructor. Integrates critical thinking concepts, research strategies, public health skills, and culturally competent training culminating in a final project.

6010. Fundamentals of Environmental Health (3) Same as EHST 6010
Effects of environment on human health with focus on rural environment. Considers water supply and wastewater disposal, water quality, solid and hazardous wastes, air quality, occupational health and safety, food protection, and vector control.

6011. Introduction to Epidemiology (3) Same as HLTH 6011
Introduces methods and concepts of epidemiologic methodology and application of epidemiology in public health.

6013. Behavioral Sciences and Health Education (3) Same as HLTH 6013

Introduces concepts of role of social factors in health and illness as well as health education/promotion. Overview of relationships between various social factors, with health outcomes. Includes theories and approaches of health education/promotion programs.

6020. Research Methods (3)
Synthesize material from social and behavioral sciences, biostatistics, and epidemiology to better understand health problems.

6021. Epidemiology of Chronic Disease (3)
P: MPH 6000, 6011; or consent of instructor. Epidemiologic measures, statistical methods, and quantitative models specific to chronic disease epidemiology.

6022. Epidemiology of Infectious Disease (3)
P: MPH 6000, 6011; or consent of instructor. Provides concepts involved in understanding causes, transmission, and control of infectious disease as well as policies, methods, and tools employed in surveillance, detection, investigation, control, and prevention of disease outbreaks.

6023. Epidemiology of Cancer (3)
P: MPH 6000, 6011; or consent of instructor. Study design and epidemiologic methods used in cancer epidemiology research

6025. Delivery of Healthcare Services (3)
P: MPH 6000 or consent of instructor. Overview of delivery and effective leadership of healthcare services.

6027. Applied Mixed-Methods Research (3)
P: MPH 6020; BIOS 7021 or consent of instructor. Mixed-methods data collection and analysis, with focus on use of qualitative and quantitative software.

6035. Interdisciplinary Rural Health (3) Same as NURS 6035
Theoretical base and skills for interdisciplinary rural health practice.

6036. Fundamentals in Agromedicine (3)
Occupational and environmental illnesses, injuries, and prevention in agriculture (farming, fishing, and forestry).

6040. Long Term Care Administration (3)
P: MPH 6000 or consent of instructor. Overview of delivery of long term care services with an emphasis on the knowledge and skills needed for effective leadership.

6050, 6051, 6052. Independent Study (1,2,3)
May be repeated. May count a maximum of 6 s.h. toward degree. P: Consent of advisor. Study of topic not otherwise offered in public health curriculum or in greater depth than is possible within context of regular course.

6100. Aging and Health (3) Same as GERO 6100; SOCI 6100
P: Consent of instructor or Center on Aging associate director for educational programs. Analysis of behavioral, social, and cultural influences upon health status of older adults and intervention strategies.

6150. History of Public Health in the Modern West (3) Same As HUMS 6150
P: Graduate standing. History of the rise of organized public health systems in the West with emphasis on the contribution such understanding can make to contemporary practices, policies, and priorities.

6200. Community Health Organization and Leadership (3)
P: COHE 6000 or MPH 6000 or consent of instructor. Leadership, community organization, planning, advocacy and communication skills for administration of community health centers and integrated health care systems.

6600. Planning Public Health Programs (3)
P: MPH 6013. Development and delivery of public health programs.

6605. Evaluating Public Health Programs (3)

P: MPH 6013, 6600. Evaluation of public health programs, including formative, process, impact, and outcome evaluation.

6610. Nutrition and Public Health Issues (3) Same as NUTR 6610

P: Consent of instructor. Examines science base for community nutrition, including problem identification, interpretation of nutritional data and scientific issues, public health policy, societal and health trends, and emerging legislative issues related to nutrition and public health.

6670. Public Health Perspectives on Maternal and Child Health (3)

P: Enrollment in master of public health degree program or permission of instructor. Introduces students to maternal and child health (MCH), with primarily a domestic focus. Emphasis on understanding the role policies and programmatic issues play in MCH. Students will gain an understanding of key issues for MCH populations.

6903. Comprehensive Field Placement (3)

240 hour field placement. P: Consent of instructor. Students must have substantial previous experience in public health at the professional level to be eligible for this course. Project development and demonstration of academic knowledge with learned public health core competencies in professional public health practice settings.

6904. Introduction to Field Placement (1)

P: MPH 6000, 6002; MPH 6010 or EHST 6010; MPH 6011; MPH 6013 or HLTH 6013; MPH 6020; MPH 6035 or NURS 6035; BIOS 7021; or consent of instructor. Introduces the student to leaders from different healthcare entities; providing information and discussion on both field placement and career ladder opportunities in their specific healthcare domains.

6905. Applied Field Placement (2)

240 hour field placement. P: MPH 6904. Demonstration of academic knowledge with learned public health core competencies in professional public health practice settings.

6991, 6992. MPH Professional Paper (2,1)

May be repeated. Only 3 s.h. may count towards the degree. P for 6991: MPH 6000, 6002, 6011, and 6020 or consent of instructor. P for 6992: All core courses or consent of instructor. Includes applied learning exercise on the implementation of public health and epidemiologic research methodology. Students develop a research proposal (6991); implement their proposal, analyze their results, and write a public health research article (6992) that is ready for submission to a peer-reviewed scientific journal.

III. Brody School of Medicine

Department of Bioethics and Interdisciplinary Studies

http://www.ecu.edu/cs-acad/grcat/coursesHUMS.cfm

HUMS: Medical Humanities

6150. History of Public Health in the Modern West (3) Same As MPH 6150

P: Graduate standing. History of the rise of organized public health systems in the West with emphasis on the contribution such understanding can make to contemporary practices, policies, and priorities.

7004. Ethics and Research: Humanities and Basic Medical Sciences (2) Same as GRAD 7004 and NURS 7004

May not receive credit for both GRAD 7004 and HUMS 7004. Identifies some philosophical, moral, political, legal, and social issues associated with scientific research. Explores relationship between moral, legal, professional, social, and institutional responsibilities of working scientist. Develops critical skills for understanding and evaluating arguments, claims, and policies pertaining to moral, political, legal, and social aspects of research.

IV. College of Education

Department of Library Science

http://www.ecu.edu/cs-acad/grcat/programLIBS.cfm

MLS

The master of library science program is designed for students seeking employment as librarians and information professionals in Pre K-12 schools, universities, community colleges, public libraries, and related settings. All students are eligible for NC Public Library Certification upon completion of the MLS degree requirements. The MLS requires a minimum of 39 s.h. of credit. Eight core courses (24 s.h.) are required of all students **to be taken in a consecutive series as follows**: ~~LIBS 6010, 6012, 6014, 6018, 6026, 6031, 6042, and 6991 or 6992.~~

Tier 1: LIBS 6010, 6012, 6042
Tier 2: LIBS 6014, 6026, 6031
Tier 3: LIBS 6018 and 6991 or 6992

School library media (courses required for public school licensure): **A school focused sequence of courses within the 39 hour MLS including the following courses specific to school librarianship:** LIBS 6135, **6137,** 6142 and 6144: ~~one of the following educational core competency courses: EDUC 6001, ELEM 6550 or ADED 6550, SPED 6002;~~ and one elective (3 s.h.) to be selected in consultation with an advisor. **The 076 Media Coordinator license also requires a satisfactory score on the Media Coordinator Praxis/NTE (National Teacher's exam). LIBS 6989 Early Internship is a prerequisite** ~~Additional pre-requisites may be required~~ for students seeking media coordinator licensure and lacking an initial teaching licensure. **Prospective school pathway applicants who hold an undergraduate degree or graduate degree in another discipline must complete the full MLS degree requirements, as specified above (39 or 42 s.h.).**

Public library: LIBS 7050 and electives (12 s.h.) selected in consultation with an advisor.

Academic library: **LIBS 6810, 6972, and electives (9 s.h.)** All electives are selected in consultation with an advisor to meet the career goals of the student.

Applicants holding a graduate degree in library science ~~or education~~ who are seeking school licensure are required to submit transcripts for evaluation. Upon review, a course of study will be determined to meet the competencies of the North Carolina Department of Public Instruction and the American

Association of School Librarians of the American Library Association working with the National Council for Accreditation of Teacher Education.

~~**North Carolina School Media Supervisor Licensure**~~

~~Students seeking school media supervisor licensure must have three years of successful experience as a media coordinator and are required to take 18 s.h. above the master's degree. Courses must include LIBS 7010, a course in educational curriculum development, and LIBS 7991.~~

http://www.ecu.edu/cs-acad/grcat/CoursesLIBS.cfm

LIBS: Library Studies

6010. Foundations of Library and Information Studies (3)
P: Admission to MLS program or consent of chair; demonstrated competency in the basic operation of word processing, data bases, and spreadsheets. Development and functions of libraries and information centers, professional practice and ethics, and current issues and trends.

6012. Analyzing and Synthesizing Professional Library Information (3)
P/C: LIBS 6010. Analysis and synthesis of professional library literature and resources.

6014. Introduction to Reference (3)
P/C: LIBS 6010~~; or~~ and consent of chair. Major general reference sources used to answer information needs of library users.

6018. Collection Development (3)
P/C: LIBS 6010~~; or~~ and consent of chair. Principles and methods of selecting print and nonprint materials, intellectual freedom, and formulation of selection policies.

6026. Organization of Information in Libraries (3)
P/C: LIBS 6010 and consent of chair. Organization of information resources, including classification, cataloging (MARC), and subject headings.

6031. Library Administration and Management (3)
P/C: LIBS 6010~~; or~~ and consent of chair. Theory and principles of management with relevant application for public, school, and academic libraries.

6042. Technology for Library Services (3)
P/C: LIBS 6010; or consent of chair. Use of technology in effective programs for youth services. Evaluative criteria for hardware and software and methods and strategies to integrate technology into instructional process.

6045. Human-Computer Interface Design (3) Same as EDTC 6045
P: Basic computer knowledge. Design and evaluate human-computer interfaces for information and instructional products. Applies human-computer interface principles and user-centered design perspective to project development.

6060. Using the World Wide Web for Research (3)
Identification and evaluation of research resources found on World Wide Web. Search strategies, copyright, and censorship.

6133. Materials for Early Childhood (3)
Survey of materials for infants, toddlers and preschool age children, emphasizing the evaluation and selection of print and non-print resources for use in early literacy-enriched story-time programming.

6135. Materials for Children (3)

Evaluation, selection, and use of contemporary fiction, informational books, and other media for elementary through middle school age children in grades K-8.

6137. Materials for Young Adults (3) Formerly LIBS 5115
Evaluation, selection and use of contemporary fiction, informational books and other media for high school age young adults, grades 9-12.

6142. Instructional Foundations of the School Library Media Program (3)
P: LIBS 6010, 6012, 6014, 6026, 6031, 6042; or consent of instructor. Educational standards, models of information literacy, assessment, and their impact on student achievement.

6144. Instructional Strategies and Leadership for School Media Specialists (3)
P: LIBS 6142. Strategies for education, collaboration, leadership, and assessment.

6160. The Art of Storytelling (3)
Storytelling techniques and performance for varied audiences. Historical origins, story memory, and development of storytelling programs for all ages.

6215. Genealogy for Librarians (3)
One or more field trips. Roles of libraries and librarians as related to genealogical collections and services. Review of genealogical resources in other libraries, archives, and institutions. Emphasis on materials and methods of genealogical research.

6220. History of Books and Libraries (3)
Origin and development of the book in its various forms from earliest times to twentieth century. Evolution of library as institution.

6225. Government Publications (3)
Forms, distribution, care, and use of all types of federal government publications.

6240. Virtual Reality: Principles and Applications (3) Same as EDTC 6240
Basic principles of virtual reality. Emphasis on applications in education and other fields. Students select special projects according to their interests and build virtual environment.

6242. Building and Using Graphics-Based Virtual Environments for Education (3) Same as EDTC 6242
P: EDTC 6240 or LIBS 6240 or consent of chair. Graphics-based environment design, building, application, and evaluation for education.

6244. Building and Using Text-Based Virtual Reality Environments for Education (3) Same as EDTC 6244
P: EDTC 6240 or LIBS 6240 or consent of chair. Text-based environment design, building, applications, and evaluation for education.

6320. Advanced Reference (3)
P: LIBS 6010, 6014, 6018, 6026; or consent of chair. Sources of information in major subject areas.

6345. Library of Congress Classification System (2)
P: LIBS ~~6014~~ **6026** or consent of chair. Construction, use, and notation. Development of subject headings.

6735. Seminar on Intellectual Freedom (2)
Intellectual freedom principles in library and information studies. Pressure groups, censorship, and strategies for coping with attempts to limit access to information.

6810. Academic Libraries (3)
P: LIBS 6010, 6012, 6014, 6018, 6026, 6031, 6042; or permission of instructor. Issues and trends in community college, college and university libraries.

6848. Seminar on Virtual Reality and Education (3) Same as EDTC 6848
P: EDTC 6242 or LIBS 6242; EDTC 6244 or LIBS 6244; or consent of chair. Explores problems and issues affecting building, use and evaluation of virtual reality environments in educational settings.

6900. Electronic Portfolio Development (3) Same as EDTC 6900

Practical application of theory, assessment, and reflection addressing state and national standards in professional electronic portfolios.

6901, 6902, 6903, 6904. Special Topics in Library Studies (1,2,3,4)
May be repeated for credit with change of topic for given course number. P: LIBS 6014, 6018, 6031; or consent of chair. Variety of newly developed and special courses offered as sections.

6972. Research Methods in Library and Information Studies (3)
P: LIBS 6014, 6018, 6031; or consent of chair. Various available resources and problems of research in library and information studies.

6973. Research Paper (3)
Directed by assigned faculty member. P: LIBS 6972. Research project developed in proposal form in LIBS 6972. Select methodology, collect and analyze data, draw conclusions, and present findings in written report.

6981, 6982, 6983. Directed Independent Study (1,2,3)
May be repeated for credit for maximum of 6 s.h. P: Consent of chair. Topic not otherwise offered in curriculum or more in depth than is possible within context of regular course.

6989. Early Internship (3)
110 hours of observation and practical experience. For students seeking initial licensure. P: 9 s.h. in LIBS or consent of chair. Placement in school library media setting.

6991, 6992. Internship: Seminar (3,3)
110 hours of observation and practical experience. P: 30 s.h. in LIBS or consent of chair. Placement in library setting appropriate to student's field of concentration.

7000. Thesis (1-6)
May be repeated. May count maximum of 3 s.h.

7001. Thesis: Summer Research (1)
May be repeated. No credit may count toward degree. Students conducting thesis research may only register for this course during the summer.

~~7010. Supervision of School Media and Technology Programs Same as EDTC 7010~~
~~P: Consent of CAS-LS or MAEd program director. Principles and practices of supervision involved in comprehensive media and technology programs in school district and/or region.~~

7030. Financial Management of Public Library Organizations (3)
P: LIBS 6010, 6031; or consent of instructor. Introduction to theory, resources, concepts, and current practices of the financial management of public libraries.

7050. Seminar on Public Libraries (3)
P: LIBS 6031 or equivalent or consent of chair. Characteristics, operations, and problems of public libraries.

7060. Seminar on Community College Learning Resource Centers (2)
P: LIBS 6031 or equivalent or consent of chair. Characteristics, operations, and problems of learning resource centers in technical institutes and community colleges.

7070. Seminar on Library Automation (2)
P: LIBS 6046 or equivalent or consent of chair. Problems of library automation. Emphasis on current trends in design and implementation.

7110. Advanced Storytelling (3)
For those with some storytelling background. P: LIBS 6160 or equivalent or consent of chair. Develop and enhance storytelling performance. Presentation of self as entrepreneurial storyteller.

7150. Programs for Youth in Public Libraries (3)
P: LIBS 6014, 6031, 6042, 6135; or consent of chair. Theory and methods of building effective public library programs for children and young adults.

7160. The Adult Reader (3)

Internet connectivity required. P: LIBS 6014, 6031, 6042, 6135; or consent of chair. Examines selection of sixteen popular genres for adult readers, including readers' advisory services.

7210. Computer-Assisted Instruction in Librarianship (3)
Theory, design, application, and evaluation of computer-assisted instruction in librarianship.

7250. Qualitative Research and Evaluation in Librarianship (3)
Qualitative methods for research and evaluation as applied to information needs of groups, libraries, and similar institutions.

7901, 7902, 7903, 7904. Special Topics in Library Studies (1,2,3,4)
May be repeated for credit with change of topic for a given course number. P: Consent of chair. Variety of newly developed and special courses offered as sections.

~~7981, 7982, 7983. Directed Independent Study (1,2,3)~~
~~May be repeated for maximum of 6 s.h. in the CAS library science program. P: Admission to CAS library science program; consent of chair. Topic not otherwise offered in curriculum or more in-depth than is possible within context of regular course.~~

~~7991. CAS Internship: School Media Supervision, Seminar (3)~~
~~110 hours of observation and practical experience in school media supervisory settings. P: 15 s.h. in CAS library science program. Supervisory responsibilities and problems of school media centers.~~

~~7992. CAS Internship: Seminar (3)~~
~~110 hours of observation and practical experience. P: 15 s.h. in CAS library science program. Placement in setting appropriate to student's specialization area.~~

~~7995, 7996. Seminar: CAS Project (3,3)~~
~~P: 18 s.h. in CAS library science program. Problem in library studies. Report defended before faculty committee.~~

LIBS Banked Courses

6003. Reference in the Social Sciences (3)
6004. Reference in the Humanities (3)
6005. Reference in the Pure and Applied Sciences (3)
6046. Automation in Libraries (3)
6120. Information Storage and Retrieval (2)
6340. Online Cataloging (2)
6360. Telecommunications (3)
6725. Seminar on Technical Services (2)
6730. Seminar on Organization of Special Materials (2)

V. College of Fine Arts and Communication

School of Communication

http://www.ecu.edu/cs-acad/grcat/COMM.cfm

College of Fine Arts and Communication

School of Communication

Linda G. Kean, Director, 102 Joyner East
Laura C. Prividera, Associate Director and Graduate Program Director, 102 Joyner East

The School of Communication offers a master of arts in communication with an emphasis in health communication. Admission to this program requires that the applicant meet the admissions requirements of the Graduate School, as well as the School of Communication.

MA in Communication

The MA in communication prepares students for careers or advanced academic training in communication with an emphasis in health communication focusing on interpersonal communication and the media. The 30-hour program provides students with a thesis or non-thesis option.

1. Core - 18 s.h.

   COMM 6000, 6030 - 6 s.h.
   COMM 6230 (required for health communication emphasis) - 3 s.h.
   Choose 9 s.h. from the following courses (required for the health communication emphasis) - 9 s.h.
   COMM 6210, 6220, 6221, 6224, 6226, 6240

2. Options - 12 s.h.
   1. Thesis:
      COMM 7000 - 3-6 s.h.
      *Electives (COMM or related areas) - 6-9 s.h.
   2. Non-thesis:
      *Electives (COMM or related areas) - 12 s.h.
3. Successful completion of comprehensive exams or thesis.

*Electives are chosen in consultation with the graduate program director. Courses in related areas (outside of COMM) must be at the 5000 level or above. A maximum of 3 s.h. may be taken at the 5000 level.

http://www.ecu.edu/cs-acad/grcat/coursesCOMM.cfm

COMM: Communication

6000. Communication Theory (3)
P: Admission to MA in communication or consent of graduate program director. Examination and analysis of principal communication theories, including interpersonal, intercultural, organizational, small group communication and media.
6030. Research Methods (3)
P: Admission to MA in communication or consent of graduate program director. Qualitative and quantitative methodologies used in the field of communication.
6031. Communication Pedagogy (3)

P: Admission to MA in communication or consent of graduate program director. Focuses on communication education, research, theory, and application.

6110. Media Effects (3)
P: Admission to MA in communication or consent of graduate program director. Survey of psychological and sociological effects that media has on attitudes, knowledge, values and behaviors.

6120. Interpersonal Communication (3)
P: Admission to MA in communication or consent of graduate program director. Impact of research and theory on academic and pragmatic issues in communication and relationships.

6124. Organizational Communication (3)
P: Admission to MA in communication or consent of graduate program director. History of organizational communication with emphasis on current research and practice.

6131. Social Influence (3)
P: Admission to MA in communication or consent of graduate program director. Examination and application of social influence communication theories, practices, effects and ethics.

6140. Special Topics in Communication (3)
P: Admission to MA in communication or consent of graduate program director. Examination of new or advanced topics in communication.

6141. Independent Study (3)
P: Admission to M.A. in communication or consent of graduate program director. May be repeated for a maximum of 6 s.h. Directed study of communication research and practice.

6210. Media and Health Communication (3)
P: Admission to MA in communication or consent of graduate program director. Theory and research of issues involving media and health.

6220. Interpersonal Health Communication (3)
P: Admission to MA in communication or consent of graduate program director. Theories and practices in various health care contexts, with emphasis on relationships among patients and health care providers.

6221. Intercultural Communication in Health Contexts (3)
P: Admission to MA in communication or consent of graduate program director. Intercultural communication theory and research as they apply to health contexts.

6224. Communication and Health Organizations (3)
P: Admission to MA in communication or consent of graduate program director. Analysis and practice of communication in health care settings.

6226. Communication Approaches to Health Advocacy (3)
P: Admission to M.A. in communication or consent of graduate program director. Theories and practices of advocacy in health contexts.

6230. Introduction to Health Communication (3)
P: Admission to MA in communication or consent of graduate program director. Introduction to the area of health communication covering interpersonal, organizational and media issues.

6240. Special Topics in Health Communication (3)
May be repeated for maximum of 6 s.h. with change of topic. P: Admission to MA in communication or consent of graduate program director. Examination of new or advanced topics in health communication.

7000. Thesis (1-6)
P: Admission to MA in communication or consent of graduate program director. May be repeated. May count a maximum of 6 s.h. toward the degree.

VI. College of Fine Arts and Communication

School of Communication

http://www.ecu.edu/cs-acad/grcat/COMM.cfm

College of Fine Arts and Communication

School of Communication

Linda G. Kean, Director, 102 Joyner East
Laura C. Prividera, Associate Director and Graduate Program Director, 102 Joyner East

The School of Communication offers a master of arts in communication with an emphasis in health communication. Admission to this program requires that the applicant meet the admissions requirements of the Graduate School, as well as the School of Communication.

MA in Communication

The MA in communication prepares students for careers or advanced academic training in communication with an emphasis in health communication focusing on interpersonal communication and the media. The 30-hour program provides students with a thesis or non-thesis option.

1. Core - 18 s.h.

   COMM 6000, 6030 - 6 s.h.
   COMM 6230 (required for health communication emphasis) - 3 s.h.
   Choose 9 s.h. from the following courses (required for the health communication emphasis) - 9 s.h.
   COMM 6210, 6220, 6221, 6224, 6226, 6240

2. Options - 12 s.h.
   1. Thesis:
      COMM 7000 - 3-6 s.h.
      *Electives (COMM or related areas) - 6-9 s.h.
   2. Non-thesis:
      *Electives (COMM or related areas) - 12 s.h.
3. Successful completion of comprehensive exams or thesis.

*Electives are chosen in consultation with the graduate program director. Courses in related areas (outside of COMM) must be at the 5000 level or above. A maximum of 3 s.h. may be taken at the 5000 level.

Certificate in Health Communication

The graduate certificate in health communication provides students with the knowledge and skills necessary to analyze, evaluate, and apply effective communication in health contexts. The courses in the certificate program examine research, theory and practices of communication.

This certificate is open to students enrolled in graduate degree programs as well as nondegree applicants holding a baccalaureate degree. Students currently enrolled in the MA in communication are not eligible to earn the certificate in health communication.

The program requires 12 s.h. of health communication course work with a minimum grade of B from the following: COMM 6210, 6220, 6221, 6224, 6226, 6230, and 6240.

http://www.ecu.edu/cs-acad/grcat/coursesCOMM.cfm

COMM: Communication

6000. Communication Theory (3)
P: Admission to MA in communication or consent of graduate program director. Examination and analysis of principal communication theories, including interpersonal, intercultural, organizational, small group communication and media.
6030. Research Methods (3)
P: Admission to MA in communication or consent of graduate program director. Qualitative and quantitative methodologies used in the field of communication.
6031. Communication Pedagogy (3)
P: Admission to MA in communication or consent of graduate program director. Focuses on communication education, research, theory, and application.
6110. Media Effects (3)
P: Admission to MA in communication or consent of graduate program director. Survey of psychological and sociological effects that media has on attitudes, knowledge, values and behaviors.
6120. Interpersonal Communication (3)
P: Admission to MA in communication or consent of graduate program director. Impact of research and theory on academic and pragmatic issues in communication and relationships.
6124. Organizational Communication (3)
P: Admission to MA in communication or consent of graduate program director. History of organizational communication with emphasis on current research and practice.
6131. Social Influence (3)
P: Admission to MA in communication or consent of graduate program director. Examination and application of social influence communication theories, practices, effects and ethics.
6140. Special Topics in Communication (3)
P: Admission to MA in communication or consent of graduate program director. Examination of new or advanced topics in communication.
6141. Independent Study (3)
P: Admission to M.A. in communication or consent of graduate program director. May be repeated for a maximum of 6 s.h. Directed study of communication research and practice.
6210. Media and Health Communication (3)

P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director. Theory and research of issues involving media and health.

6220. Interpersonal Health Communication (3)
P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director. Theories and practices in various health care contexts, with emphasis on relationships among patients and health care providers.

6221. Intercultural Communication in Health Contexts (3)
P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director. Intercultural communication theory and research as they apply to health contexts.

6224. Communication and Health Organizations (3)
P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director. Analysis and practice of communication in health care settings.

6226. Communication Approaches to Health Advocacy (3)
P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director. Theories and practices of advocacy in health contexts.

6230. Introduction to Health Communication (3)
P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director. Introduction to the area of health communication covering interpersonal, organizational and media issues.

6240. Special Topics in Health Communication (3)
May be repeated for maximum of 6 s.h. with change of topic. P: Admission to MA in communication or graduate certificate in health communication, or consent of graduate program director. Examination of new or advanced topics in health communication.

7000. Thesis (1-6)
P: Admission to MA in communication or consent of graduate program director. May be repeated. May count a maximum of 6 s.h. toward the degree.

VII. College of Education

Department of Higher, Adult and Counselor Education

LDHE: Educational Leadership, Higher Education

7501. Readings in Higher Education Leadership (1)
P: Admission to EdD in educational leadership or permission of higher education concentration program coordinator. Directed readings and writing in the field of higher education leadership.

8070. History and Philosophy of Higher Education (3)
P: Admission to EdD in educational leadership or permission of higher education concentration program coordinator. History and development of colleges and universities, including major

social factors and philosophical perspectives that have shaped the development of higher education.

8080. Finance in Higher Education (3)

P: Admission to EdD in educational leadership or permission of higher education concentration program coordinator**.** Revenue sources, budgetary processes, stakeholder interests, and higher education policies (federal and state) impacting the fiscal overview and management by academic leaders.

IX. Thomas Harriot College of Arts and Sciences

Department of Biology

http://www.ecu.edu/cs-acad/grcat/programBIOL.cfm

MS in Biology

1. Core: BIOL 6880, 7000*; BIOL 7900 or BIOS 7021 or 7022; and 7 s.h. of electives - 15 s.h.
2. Concentration area (Choose a minimum of 15 s.h. from one area.) - 15 s.h.

Cell biology:

BIOL 5450, 5451, 5630, 5631, ~~5800, 5810, 5821,~~ 5870, 5890, 5900, 5901, 6030, 6082, 6083, 6100, 6120, 6130, 6200, 6230, 6231, 6240, 6242, 6244, 6250, 6251, 6300, 6301, 6504, 6900, 7080, 7090, 7091, 7130, 7170, 7180, 7181, 7190, 7210, 7211, 7212, 7213, 7240, 7345, 7370, 7480, 7481, 7870, 7875, 7880, 7881, 7890, 7895.

Environmental and organismic biology:

BIOL 5070, 5071, 5150, 5151, 5220, 5221, 5230, 5231, 5260, 5261, 5270, 5351, ~~5400, 5401,~~ 5550, 5551, 5600, 5601, 5640, 5641, 5680, 5730, 5731, 5950, 5951, 6040, 6041, 6071, 6210, 6220, 6514, 6700, 6800, 6820, 6821, 6850, 6860, 6910, 7010, 7020, 7021, 7200, 7201, 7310, 7350, 7400, 7401, 7360, 7630, 7740, 7741, 7920.

*BIOL 7000 may be repeated for registration status, but only 6 s.h. may count toward graduation.

MS in Molecular Biology and Biotechnology

Applicants must complete courses or demonstrate competency in genetics, microbiology, and basic molecular technology. The degree requires 30 s.h. of credit as follows.

1. Required courses (12 s.h.): BIOL 5870 or 7870; ~~5800, 5821~~; 6240 or 6242; 6244, 6880, 7000*.
2. A minimum of 14 s.h. (including two of the ** courses) must be taken from the following: BIOL 5260, 5261, 5510, 5511, 5520, 5521, 5890, 5900**, 5901**, 5930, 5931, 6030, 6082, 6083, 6100, 6120, 6200, 6230, 6231, 6250**, 6251**, 6504, 6514, 6992, 6993, 7080, 7180**, 7181**, 7190, 7210, 7211, 7212, 7213, 7480**, 7481**, 7875, 7880, 7881, 7890, 7895.
3. Electives: A maximum of 4 s.h. may be designated at the candidate's option as elective hours with the approval of the graduate director and the candidate's advisor, to complete graduation requirements of 30 s.h. for this degree.

*BIOL 7000 may be repeated for registration status, but only 6 s.h. may count toward graduation.

Internship Option: Qualified students will be encouraged to spend from six months to one year in an internship at an industrial or governmental research laboratory. From 2-5 s.h. of internship credit can be applied toward the degree.

http://www.ecu.edu/cs-acad/grcat/coursesBIOL.cfm

BIOL: Biology

5070, 5071. Ornithology (4,0)
3 lecture hours and 1 3-hour lab per week. Field trips to observe native birds in natural surroundings required. P: 8 s.h. in BIOL. Survey of world's birds. Emphasis on ecology, evolution, and behavior: adaptive radiation, migration, flight mechanics, morphology, taxonomy, bird song, reproduction, population biology, and conservation of birds.

5150, 5151. Herpetology (4,0)
3 lectures and 1 3-hour lab per week. P: 8 s.h. in BIOL. Taxonomy, anatomy, physiology, distribution, phylogeny, natural history, and ecology of reptiles and amphibians of the world. Emphasis on species of NC and Atlantic Coastal Plain.

5220, 5221. Limnology (4,0)
3 lectures and 1 3-hour lab per week. P: BIOL 2250, 2251; or consent of instructor. Physical, chemical, and biological factors of inland waters and their influence on aquatic organisms.

5230. Biology of Algae (3)
3 lecture hours per week. P: BIOL 1100, 1101 (or equivalent) or consent of instructor. Surveys physiology, ecology evolution, and importance to society of organisms commonly referred to as algae.

5231. Biology of Algae Laboratory (1) 1
3-hour lab per week. C: BIOL 5230 or consent of instructor. Surveys algal form and function, combined with a group project that uses molecular biotechnology to study some aspect of algal biology.

5260, 5261. Microbial Ecology (4,0)
3 lectures and 2 2-hour labs per week. P: BIOL 2250, 2251, 3220, 3221; or consent of instructor. Interactions between microorganisms and their physical, chemical, and biological environment. Microbial involvement in energy flow, nutrient cycling, and intra/inter-specific interactions. Introduces statistical analyses of biological and ecological data.

5270. Marine Community Ecology (3)
P: BIOL 2250, 2251; or consent of instructor. Advanced examination of ecology of marine and brackish water communities based on principles of population biology and community ecology. Emphasis on current hypotheses concerning processes structuring major communities.

5351. Biological Processes and the Chemistry of Natural Water (2)
6 lab hours per week. P: BIOL 2250, 2251; 2 CHEM courses; or consent of instructor. Interactions of water quality and biological processes in aquatic ecosystems.

~~**5400. Wetland Ecology and Management (3)**~~
~~P: BIOL 2250, 2251; or consent of instructor. Marshes, swamps, bogs, fens, and other intermittently flooded ecosystems. Emphasis on classification, ecosystem processes, structure, and management of freshwater and saltwater wetlands.~~

~~**5401. Wetland Ecology Laboratory (1)**~~
~~P: BIOL 2250, 2251; C: BIOL 5400. Application of methods to measure ecological properties, assess functioning, identify plant communities, and understand landscape interaction of wetland ecosystems.~~

5450, 5451. Histology (4,0)
2 lectures and 2 2-hour labs per week. P: 4 BIOL courses. Organization of cells, tissues, and organs at microscopic level.

5510, 5511. Transmission Electron Microscopy (4,0)
2 lecture and 6 lab hours per week. P for undergraduate students: Senior standing as BIOL major or consent of instructor. Introduces theory, design, and use of transmission electron microscope and preparation of biological materials for its use.

5520, 5521. Scanning Electron Microscopy and X-Ray Analysis (2,0)
1 lecture and 4 lab hours per week. P for undergraduate students: Senior standing as a BIOL major or consent of instructor. Introduces theory and techniques of scanning electron microscopy and X-Ray analysis and preparation of materials for both.

5550, 5551. Ichthyology (4,0)
2 lectures and 2 3-hour labs per week. Evolution and biology of world's major fish groups. Emphasis on NC species.

5600, 5601. Fisheries Techniques (3,0)
For biology majors interested in marine biology. Field trips and field studies are integral. 2 lectures and 1 3-hour lab or field excursion per week. P: BIOL 2250, 2251; or equivalent. Practical training in field and lab experimental methods in fisheries techniques.

5630, 5631. Comparative Animal Physiology (4,0)
3 lectures and 1 3-hour lab per week. P: 2 BIOL and 2 organic CHEM courses. Principles of function of organ systems of major groups of animals. Nutrition, digestion, respiration, skin and temperature control, blood and circulatory systems, excretion, the muscular-skeletal system, nervous coordination, and endocrine system.

5640, 5641. Entomology (4,0)
3 lectures and 1 3-hour lab per week. P: 12 s.h. BIOL. General anatomy, physiology, ecology, and classification of insects.

5680. Current Topics in Coastal Biology (3)
P: Consent of instructor. Seminar on environmental issues in coastal biology presented by directed reading, lecture, and discussion.

5730, 5731. Animal Physiological Ecology (4,0)
3 lectures and 1 3-hour lab per week. P: BIOL 2250, 2251; 3310, 3311 or 3320, 3321 or 5800, 5821; or consent of instructor. Physiological adjustments and responses of animals to their environment. Considers mechanisms involved and invertebrate, vertebrate, aquatic, and terrestrial animals.

5750, 5751. Introduction to Regional Field Ecology (2,0) (5750:WI)
For science and environmental studies teachers. 20 hours of lecture and 32 hours of field trips. May not count toward MS in BIOL or molecular biology/biotechnology. Major regional ecosystems.

~~**5800. Principles of Biochemistry I (3)**~~
~~3 lecture hours per week. P: BIOL 3310, 3311; or consent of instructor; CHEM 2760, 2763. Intermediary metabolism, metabolic processes, and metabolic regulation of major groups of compounds in living cells.~~

~~**5810. Principles of Biochemistry II (3)**~~
~~May be taken before BIOL 5800. P: BIOL 3310, 3311; or consent of instructor; CHEM 2760, 2763. Protein biochemistry. Structure and function of amino acids and proteins, including protein biosynthesis and kinetics. Structures illustrated using computer modeling techniques.~~

~~**5821. Principles of Biochemistry Laboratory (1)**~~
~~Required for biochemistry majors; recommended for biology majors. P/C for undergraduate students: BIOL 5800 or 5810. General biochemistry lab designed to complement BIOL 5800, 5810.~~

5870. Molecular Biology of the Gene (3)
P: BIOL 2300. Genetics of prokaryotic and eukaryotic organisms at molecular level. Structure and function of nucleic acids; replication, recombination, and repair; control of gene expression; and other related topics.

5890. Virology (3)
P: BIOL 2100, 2101 or 7870; 3220, 3221. Plant, animal, and bacterial viruses. Emphasis on distinctive features of viruses as related to parasitism, disease, and basic research.

5900, 5901. Biotechniques and Laboratory (2,3)
2 1-hour lectures and 2 4-hour labs per week. P: BIOL 2100, 2101, 7870; consent of instructor; RP: BIOL 5810, 5821; C for 5901: BIOL 5900. Theory and practice of modern genetic engineering technology. Topics include DNA purification, electrophoresis, restriction mapping, use of DNA modifying enzymes, basic cloning in plasmid vectors, and strain construction by conjugation and transduction.

5930, 5931. Microcomputer Applications in Molecular Biology (2,0)
1 lecture and 1 3-hour lab per week. P: BIOL 3310, 3311; or 5810, 5821; or 5870. Techniques for analysis of biological characteristics of nucleic acid and protein molecules using BASIC with microcomputers.

5950, 5951. Taxonomy of Vascular Plants (4,0)
1 2-hour lecture and 1 4-hour lab per week. P: 12 s.h. BIOL or consent of instructor; RP: BIOL 2250, 2251. Plant importance, identification, classification, and evolution as well as how plants interact with living and nonliving environments. Field experiences emphasize major communities and dominant floral elements of coastal NC.

5995. Internship (1)
3 hours per week. May be repeated once for a maximum of 2 s.h. P: Consent of instructor. Lab experiences under direct supervision of a member of biology faculty.

6003. Seminar (1)
Student, staff, and guest speakers on current research.

6030. Topics in Cell Biology (3)
P: Consent of instructor. Some combination of current work in bioenergetics, membrane biology, immunobiology, cell/organelle differentiation, and functions of specialized cells. Other topics not routinely considered in undergraduate courses will be reviewed also. Content varies with instructor interests.

6040, 6041. Animal Behavior (4,0)
3 lectures and 1 3-hour lab per week. P: Consent of instructor. Presentation of historical development of animal behavior as field of study through directed reading, discussion, and practical experience. Presentation of some current principles and experimental approaches to animal behavior.

6071. Human Gross Anatomy (4)
P: Consent of instructor. Dissection-based regional study of human cadaver.

6082, 6083. Fundamentals of Vertebrate Endocrinology (3,1)
3 lectures and 1 3-hour lab per week. P: BIOL 3310, 3311; or 3320, 3321; or equivalent; C for 6083: BIOL 6082. Neurosecretions and endocrine glands. Emphasis on evolution, development, morphology, and physiology of endocrine system. Hormone biosynthesis and mechanisms of action.

6100, 6120. Advances in Molecular Biology (2,2)

May be repeated once for credit with consent of instructor. P: BIOL 5810, 5821; or 5870; consent of instructor. In-depth focus on problems of current interest in molecular biology and genetic engineering. Topics vary. Detection and identification of and defense against biological warfare agents, including international and domestic security programs.

6130. Advances in Developmental Biology (2)
P: Consent of instructor. Recent advances in animal and plant development. Specific discussion includes gene regulation, embryonic induction, hormone action, cell movement, cell growth, photoperiodism, etc., in relation to differentiation.

6200. Mechanisms of Genetic Recombination (2)
P: BIOL 3220, 3221; or 5870; 5810, 5821; consent of instructor. Aspects of genetic recombination, including general and site specific recombination, gene mapping methods, DNA and RNA sequence rearrangements, and transposable genetic elements. Emphasis on current developments in growing field.

6210. Phylogenetic Theory (3)
Theory and practice of modern phylogenetic methods. Topics include basic evolutionary concepts, reconstructing evolutionary relationships using molecular and other data, and statistical methods for assessing reliability of phylogenetic analyses. Emphasis on hands-on experience with phylogenetic computer programs.

6220. Evolution: Topics for Advanced Students (3)
P: A genetics course. Current concepts of evolution, presented by reading, lecture, and discussion.

6230, 6231. Advanced Techniques in Molecular Biology (2,3)
2 lectures and 2 4-hour labs per week. P: BIOL 5900, 5901; C for 6231: 6230. Advanced genetic engineering techniques for basic and applied research.

6240. Principles of Biochemistry I (3) Formerly BIOL 5800 P: Graduate standing in biology or consent of instructor. Intermediary metabolism and metabolic regulation of major groups of compounds in organisms and current research topics in biochemistry.

6242. Principles of Biochemistry II (3) Formerly BIOL 5810 P: Graduate standing in biology or consent of instructor. Intermediary metabolism including the pentose phosphate and Entner-Doudoroff pathways, glycogen and fatty acid metabolism, biosynthesis of amino acids, nucleotides, and lipids. DNA replication and repair, RNA synthesis and processing and protein synthesis and degradation. Signal transduction and the control of gene expression.

6244. Principles of Biochemistry Laboratory (1) Formerly BIOL 5821 P: Graduate standing in biology or consent of instructor. General biochemistry laboratory to complement BIOL 6240 and 6242.

6250, 6251. Protein Purification Techniques (4,0)
P: BIOL 5810, 5821. Purification methods used to isolate enzymes and other proteins from living cells. Recombinant DNA-based enzyme purification techniques.

6300, 6301. Neurophysiology (3,0)
2 lectures and 1 3-hour lab per week. P: BIOL 3310, 3311; or 3320, 3321; or equivalent. Cellular physiology of neurons and interrelationships between neurons.

6410. Contemporary Molecular and Cellular Biology for Advanced Placement Teachers (2)
In-depth review of energy transformations in cells, cell division, molecular genetics, and enzyme systems. Emphasis on advances in knowledge during past decade. Course coordinator arranges lecturers on selected topics.

6420. Contemporary Organismal Biology for Advanced Placement Teachers (2)
In-depth review of plant structure and function. Emphasis on angiosperms, animal structure, and function. Vertebrates and reproduction and development of plants and animals. Course coordinator arranges lecturers on selected topics that emphasize advances in knowledge during past decade.

6430. Contemporary Population Biology for Advanced Placement Teachers (2)
In-depth review of genetics, evolution, behavior, ecology, and social biology. Emphasis on advances in knowledge during the past decade. Course coordinator arranges lecturers on selected topics.

6504, 6514. Research Problems in Biology (2,2)
4 research hours per week. May be repeated for credit with change of topic. P: Consent of instructor. Research completed under supervision of faculty member.

6700. Plant Physiological Ecology (2)
P: One ecology course. Physiological mechanisms of plants relevant at individual, community, and ecosystem levels. Emphasis on higher plants in stressful environments.

6800. Population Ecology (2)
P: One ecology course; consent of instructor. Intrinsic and extrinsic controls of microbe, plant, and animal population dynamics.

6820, 6821. Systems Ecology (3,0)
2 lectures and 1 3-hour lab per week. P: One ecology course; consent of instructor. Ecosystem structure and function utilizing systems analysis methods and computer models.

6850, 6860. Advances in Ecology (2,2)
May be repeated for credit with change of topic. P: BIOL 2250, 2251; or equivalent; consent of instructor. Advanced treatment of specialized topics in ecology. Emphasis on readings from primary literature.

6880. Introduction to Research (2)
Library reference services and cataloging systems. Writing techniques and problems encountered in preparation of thesis and research publications.

6900. Vertebrate Reproductive Biology (3)
P: One cell and developmental biology or physiology course or consent of instructor. Mechanisms involved in vertebrate reproduction. Morphology, physiology, and biochemistry of reproductive systems. Topics include neuroendocrine control, environmental, and other factors regulating reproductive cycles as well as current research in reproductive technology.

6992, 6993. Internship in Applied Biology (3,2)
Variable classroom and/or lab hours per week. P: Completion of basic courses prescribed by joint screening committee composed of faculty from the biology department closely allied to proposed area of study and representatives from specific applied area (industry, government, etc.) Experience in classroom, research, governmental, or industrial applications of biology.

6994. Internship (1)
3 contact hours per week. May be repeated for credit. P: Consent of instructor. Experience in classroom situations under direct supervision of biology faculty member.

7000. Thesis (1-6)
May be repeated. May count maximum of 6 s.h.

7001. Thesis: Summer Research (1)
May be repeated. No credit may count toward degree. Students conducting thesis research may only register for this course during summer.

7005. Coastal Ecological Processes (4) Formerly BIOL 6910
P: Graduate standing in CRM program or consent of instructor. For PhD students and natural science MS students. Presentation and discussion of fundamental concepts of chemistry and biology within the context of the coastal zone and with emphasis on local ecosystems.

7010. Estuarine Ecology (3) Formerly BIOL 6010
P: Consent of instructor. Discussion of the physical and biological properties of estuaries, estuarine fisheries, and human impacts on estuaries.

7020, 7021. Marine Biology (3,0) Formerly BIOL 6020, 6021
P: Consent of instructor. Biology and ecology of marine organisms with at least one field trip to coast for collection and identification.

7080. Molecular Endocrinology (3)
P: Consent of instructor. Review of modern concepts, theories, techniques and frontiers of molecular endocrinology with emphasis on functions, structures, signaling and regulation of hormones and receptors.

7090, 7091. Experimental Embryology (4,0) Formerly BIOL 6090, 6091
3 lecture and 1 3-hour lab per week. P: BIOL 4060, 4061. Historical and current understanding of molecular mechanisms underlying development. Applies experimental techniques to marine invertebrates, amphibian, and chick material.

7130. Current Literature in Development Biology (1)
P: Consent of instructor. Review of current research literature related to development biology. Emphasis on critical analysis.

7170. Immunology I (3)
P: 1 course in genetics and 1 course in microbiology, or consent of instructor. Introduces immunology. Emphasis on lymphocytes, antigen presenting cells, lymphoid tissue, and antibodies.

7180, 7181. Cell Culture and Hybridoma Technology (3,0) Formerly BIOL 6180, 6181
1 lecture and 6 lab hours per week. P: BIOL 7170 or equivalent. Principles and mechanisms of producing monoclonal antibodies. Emphasis on basic science application of monoclonal antibodies and laboratory techniques in cell culture and construction of hybridomas. Includes discussion of recent literature that includes scientific application of monoclonal antibodies.

7190. Immunology II (3) Formerly BIOL 6190
P: BIOL 7170 or equivalent. Emphasis on MHC and T cell biology. Includes review and presentation of recent immunological literature.

7200, 7201. Invertebrate Biology (4,0) Formerly BIOL 5200, 5201
3 lecture and 1 3-hour lab per week. P: 8 s.h. in BIOL. Functional anatomy, development, ecology and evolutionary history of invertebrates. Lab emphasizes species of the Southeast Atlantic coast and estuaries.

7210, 7211. Transgenic Methodology and Application (2,3)
2 lectures and 1 6-hour lab per week. P: BIOL 5900, 5901 or consent of instructor; C for 7211: BIOL 7210. Production of transgenic animals and evaluation of selected genetic engineered constructs.

7212, 7213. Gene Targeting and Knockout Animals (2,3)
2 lectures and 1 6-hour lab per week. P: BIOL 5900, 5901, 6480, 6481; or consent of instructor; C for 7212: BIOL 7213. Gene manipulation and production of knockout animals.

7215. Advanced Topics in Phylogenetic Theory (3)

P: BIOL 6210 or consent of instructor. Current advanced topics in the theory and practice of modern phylogenetics presented by reading, lecture, and discussion.

7240. The Evolution of Genes and Genomes (3)
Recent advances in comparative genomics, focusing on the evolution of more complex eukaryotic genomes.

7300. Landscape Ecology (3)
P: Consent of instructor; RP: an ecology course; a statistics course. Interaction between spatial distribution of habitat patches and ecological processes at different scales.

7310. Ecological Modeling and Simulation (3)
P: BIOL 2250, 2251 or equivalent; or consent of instructor. Dynamic computer models of ecological systems. Focus on the development of algorithms and numerical solutions to ecological processes at diverse hierarchical scales.

7320. Ecological Dimensions of Coastal Management (3)
P: Consent of instructor. Key ecosystem perspectives and environmental policies associated with coastal management and land-use. Ecological and environmental framework of coastal cities as they pertain to the functioning of a healthy human ecosystem.

7330. Ecosystems of Coastal Cities (3)
P: Consent of instructor. Structure and function of coastal cities as an ecosystem. Political and economic framework of coastal cities as they pertain to the functioning of a healthy urban ecosystem.

7345. Cell Motility (2) Formerly BIOL 6345 Same as ANAT 7345; BIOC 7345
P: General chemistry, organic chemistry, general biology, and general physics; or consent of instructor. Multidisciplinary exploration of mechanism, structure, and function of motile systems essential for eukaryotic life.

7350. Current Literature in Fish Ecology (1)
P: Consent of instructor. Review of current research literature related to fish ecology, fisheries, and fisheries management with emphasis on critical analysis.

7360. Fisheries Management (3)
P: BIOL 2250 or 3660; MATH 2121; consent of instructor. Introduces fisheries management topics, including exploited populations of living aquatic resources – fish, shellfish, and other harvestable organisms.

7370. Biological Effects of Radiation (3) Formerly BIOL 5370 Same as RONC 7370
P: BIOL 1100, 1101, 1200, 1201; or consent of instructor. Biological effects resulting from interactions of radiation and matter for scientifically, technically, and medically-oriented students.

7400, 7401. Wetland Ecology and Management (4,0) Formerly BIOL 5400, 5401 3 lectures and 1 lab per week. P: A course in ecology or consent of instructor. Ecological structure and functioning of wetland ecosystems such as marshes, swamps, bogs, and similar areas, and relationships between scientific understanding and wetland regulation and management. Field trips to representative wetlands are required.

7480, 7481. Cell Biology (4,0) Formerly BIOL 6480, 6481
2 lectures and 6 lab hours per week. P: Consent of instructor. Investigates how cells develop, function, communicate, control their activities, and die.

7630. Fish Physiology (3)
P: Consent of instructor. Emphasis on basic concepts and research frontiers related to fish physiology.

7740, 7741. Behavioral Ecology (4,0) Formerly 5740, 5741
3 lecture and 2 lab hours per week. P: Permission of instructor. Animal behavior investigated through the integration of evolution, ecology, and genetics. Readings from a text and current scientific literature, and weekly discussions.

7870. Molecular Genetics (3) Formerly BIOL 6870
P: 1 course in genetics and 2 semesters of organic chemistry or consent of instructor. Introduces molecular mechanisms responsible for DNA replication, repair, and recombination as well as transcription and translation.

7875. Plant Molecular Biology (3)
P: BIOL 5870, 7870; or consent of instructor. Introduction and analysis of the molecular mechanisms regulating plant physiology, growth and development.

7880, 7781. Bioinformatics (4,0)
P: Course in biochemistry or consent of instructor. Bioinformatic skills necessary for routine molecular sequence analyses using computational programs.

7890. Current Literature in Molecular Biology (1) Formerly BIOL 6890
P: Consent of instructor. Review of current research literature related to molecular biology. Emphasis on critical analysis.

7895. Current Literature in Cell Biology (1)
P: Consent of instructor. Review of current research literature related to cell biology. Emphasis on critical analysis.

7900. Ecological Statistics (3)
P: Consent of instructor; RP: an ecology course. Philosophy of statistical methods, principles of sampling and experimental design, and common approaches to the analysis of ecological data.

7920. Conservation Biology (3) Formerly BIOL 6920

P: Consent of instructor; RP: an ecology course. Applies principles of ecology, biogeography, population genetics, economics, sociology, anthropology, and philosophy to maintenance and restoration of biological diversity and management.

7950. Preparing for the Job Market (3)

P: Consent of instructor. Skills pertinent for career development beyond the PhD, including public speaking, the job search, job application materials, interviewing techniques, networking, and job discussion panels.

7970. Teaching Natural Science in Higher Education (3)

P: Consent of instructor. Pedagogical best practices and unique aspects of teaching and learning of the natural sciences in higher education contexts.

8810. Methods and Techniques (3)

May be repeated for credit. P: Consent of instructor. One semester rotation through research laboratories supervised by IDPBS approved faculty members.

8815. Seminar in Biological Sciences (1)

May be repeated for credit. P: Consent of instructor. Presentations on research or critical review of current literature topics by students in IDPBS program. Seminar presentation.

8830. Introduction to Research (5)

May be repeated for credit. May count maximum of 15 s.h. P: Consent of instructor. Assignment to major advisor during second year of program. Design of experimental protocols and participation in research program.

9000. Dissertation Research (3-12)

May be repeated. May count a maximum of 36 s.h. This course is not included in meeting the cumulative "B" average required for graduation.

9001. Dissertation: Summer Research (1)

May be repeated. No credit may count toward degree. Students conducting dissertation research may only register for this course during the summer.

Affected Units Marked Catalog Copy Created by the Office of Academic Program Planning and Development:

http://www.ecu.edu/cs-acad/grcat/programCHEM.cfm

Thomas Harriot College of Arts and Sciences

Department of Chemistry

Rickey Hicks, Chair, 300 Science and Technology Building
Andrew Morehead, Graduate Director, 564 Science and Technology Building

MS in Chemistry

1. Students must show competence in three of the five basic course areas listed below for 9-10 s.h. credit.

   Analytical: CHEM 5350 or 7524
   Biochemistry: BIOC 7301 or BIOL ~~5800~~6240 or 5810; 5821
   Inorganic: CHEM 5550
   Organic: CHEM 5750 or 7532
   Physical: CHEM 7542
   These courses can be waived on a course-by-course basis if a student has taken an equivalent course as an undergraduate student and demonstrates proficiency in that area, or by passing the entrance examination in that area.

2. Six semester hours of electives in chemistry or in other natural sciences or mathematics approved by the thesis committee. Three semester hours of the electives must be at the 6000 or 7000 level in the student's major area in chemistry. Students in the biochemistry concentration must include a minimum of 3 s.h. from BIOC 7310 or BIOL ~~5800~~6240 or 5810 as part of their graduate work. Students in the industrial chemistry concentration must substitute CHEM 5993 or CHEM 7993 for 3 s.h. of electives.The non-thesis option requires an additional elective course, bringing the requirement to nine semester hours of electives in chemistry or in other natural sciences or mathematics approved by the examining committee. Non-thesis students may substitute 6 s.h. of research for 3 s.h. of the elective coursework.
3. Two hours of seminar: CHEM 6103 (1 s.h. each; may be repeated). Degree students are required to attend all departmental seminars and to give two presentations on approved topics.
4. Research: CHEM 6502, 6503, 6504, 6505 (a minimum of 10 s.h.) Students in the non-thesis option must fulfill a research requirement with a minimum of 7 s.h. of CHEM 5993, 6502, 6503, 6504 or 6505. Students in the industrial chemistry concentration must take CHEM 5993 for 3 s.h. of the 7 s.h. required.
5. Thesis: CHEM 7000 (3 s.h.) or major research project (non-thesis option): CHEM 6998 (3 s.h.).
6. Research Skill: Students must satisfy the research skill requirement by successfully completing the following:
   1. Submit and orally present a thesis research plan to their thesis committee.

2. Complete the seminar program, CHEM 6103, which includes instruction on searching the chemical literature, including computer-assisted searching, attending all departmental seminars, and presenting two departmental seminars.
3. The non-thesis option may satisfy the research skill requirement by successfully completing the seminar program and the major research project requirement, which includes a comprehensive literature review, a summary of research skills, and a research proposal.

Students may select other appropriate graduate level courses by agreement of the research advisor and graduate program committee chair.