



UNIVERSITY OF
GEORGIA

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University Council

October 6, 2017

UNIVERSITY CURRICULUM COMMITTEE – 2017-2018

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Dear Colleagues:

The attached proposal from the College of Veterinary Medicine for a new Area of Emphasis in Biological and Life Sciences Laboratory Management under the major in Comparative Biomedical Sciences (M.S., Non-Thesis) will be an agenda item for the October 13, 2017, Full University Curriculum Committee meeting.

Sincerely,

Alison F. Alexander, Chair
University Curriculum Committee

cc: Provost Pamela S. Whitten
Dr. Rahul Shrivastav

PROPOSAL FOR AREA OF EMPHASIS

1. **School/College:** College of Veterinary Medicine, University of Georgia
2. **Department/Division:** Associate Dean for Research and Graduate Affairs, Office of the Dean
3. **Major:** Area of Emphasis in Biological and Life Sciences Laboratory Management under the major in Comparative Biomedical Sciences (M.S., Non-Thesis)

If major has more than one area of emphasis, submit all areas of emphasis under one major together. A course may appear in more than one area of emphasis, but each area of emphasis should have a distinct focus.

4. **Major Requirements:** Attach a list of requirements for the major. Undergraduate programs may attach a copy of the major requirements from the online bulletin. Graduate programs may provide a list of general requirements for the major.

A. Prerequisites

This is an interdepartmental M.S. program administered through the Office of the Dean by the Associate Dean for Research and Graduate Affairs. The program is available to all qualified students holding professional degrees as well as to students who have acquired a baccalaureate degree.

B. Requirements for Graduate Students

In keeping with the current requirements for the College-wide Non-Thesis M.S. degree of the Comparative Biomedical Sciences program, the student will be required to complete a program of study which constitutes a minimum of 30 hours of course work, including at least 12 semester hours of course work open only to graduate students. Furthermore, an oral presentation and a written technical report is required after each of the three internships. The duration of the whole program will be 18 months (start of fall Year 1 to end of summer Year 2). Satisfactory progress as determined and recorded by regular evaluations is required to progress to the next semester.

Graduates from baccalaureate degrees have limited hands-on experience and lack of knowledge to fulfill laboratory managers' positions or similar positions available on the market. The "Area of Emphasis in Biological and Life Sciences Laboratory Management" promotes career and technical education by preparing professionals for laboratory positions in the academic, public, and private sectors.

The "Area of Emphasis in Biological and Life Sciences Laboratory Management" master's program is designed to provide students with interdisciplinary training in communication skills, business, and management of a laboratory while providing the flexibility to emphasize hands-on knowledge in areas of greatest interest to individual students. This non-thesis M.S. provides a wide range of educational opportunities and provides methods for solving real-world problems through classes and by gaining much experience through internships.

The objectives of the "Area of Emphasis in Biological and Life Sciences Laboratory Management" are to:

- ✓ Develop the student's competency to enter the workforce with greater skills, a variety of hands-on experiences, and with confidence.
- ✓ Provide the opportunity for the student to work within different laboratory settings: Research, Clinical, Government, Industry, and Core Facility.
- ✓ Provide mentorship to assist the student in finding employment after graduation (workplace readiness, resume building, mock interviews, etc.).
- ✓ Develop strong critical thinking and problem-solving skills. Learn to lead projects from inception through completion.
- ✓ Develop intra- and inter-personal skills (teamwork, leadership, accountability, conflict management, staff supervision, and customer service).
- ✓ Develop business skills such as budget management and lean management.

- ✓ Promote good laboratory practices (organization, data recording and keeping, instruments scheduling, maintenance, safety, workplace and science ethics, compliance, quality systems management, standard operating procedures, and quality analysis of results).

5. **Proposed starting date:** Spring 2018

6. Area of Emphasis Description requirements (if any); and grade requirements (if any). Graduate Areas of Emphasis may refer to groups of courses if necessary.

The area of emphasis is designed for students seeking careers as laboratory managers in academic, public, and private sectors. Course work is combined with practical field placement and laboratory experiences in science-related fields. Internships are available from regional and national technology firms.

Also, state-of-the art facilities are available for field placement at the University. They include clinical diagnostic laboratories, a sequencing facility, a cytometry resource laboratory, a high-performance computing resource, a center, an electron and confocal microscopy facility, a bioexpression and fermentation facility, a monoclonal antibody production facility, an NMR spectroscopy facility, a bioimaging center, a nanotechnology cleanroom, and a proteomic and mass spectrometry facility. Cooperative arrangements exist with the Emory Core Facilities and other off-campus laboratories.

Table 1. Required Courses (15 hours)

Semester	Course Number	Course Title
Year 1 Fall	VETM 8900 (3 hrs)	Advances in Veterinary and Biomedical Sciences (Topic: Lab Management Skills)
Year 1 Spring	VETM 8900 (1 hr)	Advances in Veterinary and Biomedical Sciences (Topic: Seminar series)
Year 1 Summer	WFED 7450 or WFED 7450E (3 hrs)	Internship in Business and Industry
Year 2 Fall	VETM 8900 (1 hr)	Advances in Veterinary and Biomedical Sciences (Topic: Compliance)
Year 2 Fall or Year 2 Spring	WFED 7450 or WFED 7450E (3 hrs)	Internship in Business and Industry
Year 2 Spring	VETM 8900 (1 hr)	Advances in Veterinary and Biomedical Sciences (Topic: Investing in Customer Service)
Year 2 Summer	WFED 7450 or WFED 7450E (3 hrs)	Internship in Business and Industry

Depending on the interests of the student, the following courses are listed as available and may be taken during the duration of the program while at UGA:

Table 2. Course Electives (minimum of 15 hours)

Course Number	Course Title	Number of Credit Hours
BHSI 7200	Introduction to Biomanufacturing and Bioprocessing	1 hr
BINF(BCMB) 6005	Essential Computing Skills for Biologists	2 hrs
BINF 6003	Introduction to Computer Programming for Biologists	1 hr
BIOS 7010/7010E	Introductory Biostatistics I	3 hrs
COMM 6350/6350E	Scientific Communication	3 hrs
LLOD 8205/8205E	Leading From Within: Developing Personal and Interpersonal Leadership Capacity	3 hrs
LLOD 8210/8210E	Leading Change in Workplace and Adult Education Organizations	3 hrs
LLOD 8220/8220E	Discovering and Analyzing Needs in Learning, Leadership and Organization Development	3 hrs
LLOD 8300/8300E	Organization Development	3 hrs
EBUS 6010/6010E	Business Communication	3 hrs
EMKT 6110	Marketing and Business Foundations of Work-Based Education	3 hrs
EMKT 6120	Human Resource Foundations in Work-Based Education	3 hrs
GRSC 8000	Research Techniques in Integrated Life Sciences (ILS)	6-14 hrs
GRSC 8020	Critical Reading of the Primary Scientific Literature	2 hrs
GRSC 8100	Technology Commercialization	2 hrs
GRSC 8550	Responsible Conduct of Research	1 hr
IDIS 8010	Advanced Studies in Infectious Disease	4 hrs
IDIS 8020	Vaccines: From Design to Development	3 hrs
IDIS 8050	Special Topics in Ecology and Evolution of Infectious Diseases	1 hr
IDIS 8080L	Advanced Molecular Techniques	3 hrs
IDIS 8350	Principles and Research Applications of Flow Cytometry	3 hrs
GENE 8920	Nucleic Acids	3 hrs
GENE 8921	Essential Techniques in Molecular Genetics	1 hr
GENE(BINF) 8940	Applied Genome Analysis	3 hrs
GENE(MIBO) 8980	Prokaryotic Genetics	2 hrs
MIBO(POPH) 6220	Pathogenic Bacteriology	3 hrs
MIBO(POPH) 6220S	Pathogenic Bacteriology	3 hrs
MIBO(PBHL)(IDIS)(BHSI) 8260	Global Perspectives on Tropical and Emerging Infectious Diseases	1 hr
MIBO(BCMB)(BINF) 8270L	Composition, Organization, and Evolution of Genomes	3 hrs
PHAR 6010/6010E	Pharmaceutical, Biotechnology, and Device Industries	4 hrs
PHAR 6030/6030E	Current Good Manufacturing Practices	4 hrs
PHAR 6100/6100E	Quality Control and Quality Assurance	3 hrs
PHAR 6120/6120E	Process Control and Validation	3 hrs
PHAR 6200/6200E	Clinical Trials Design and Management	4 hrs
PHAR 6210E	Project Management in Clinical Trials	3 hrs
PHAR 6130E	U.S. Marketing Applications for New Drugs, Biologics, Medical Devices, and Animal Health Products	4 hrs
PHAR 6310E	Good Clinical Practice Regulations for Drugs, Biologic Products, and Medical Devices	3 hrs

PHRM(HPAM) 7230/7230E	Ethical Issues in Research	3 hrs
POPH(MIBO)(IDIS) 6450-6450L	Microbial Genetics and Genomics	4 hrs
POPH 7100L	Animals in Biomedical Research – Advanced Techniques	3-5 hrs
POPH 8160	Scientific Manuscript Writing	3 hrs
POPH(IDIS)(MIBO) 8200	Molecular Virology and Experimental Design	5 hrs
PSYC 6811	Workplace Psychology I	3 hrs
PSYC 6830	Workplace Psychology II	3 hrs
PSYC 6815	Principles of Leadership	3 hrs
PSYC 6833	Talent Development	3 hrs
STAT 6315	Statistical Methods for Researchers	4 hrs
VETM 8550	Responsible Conduct of Biomedical Research	1 hr
VETM 8900	Advances in Veterinary and Biomedical Sciences	1-3 hrs
VPAT 8140	Seminar in Veterinary Pathology	1-2 hrs
WFED 8000/8000E	Technology for Education in the Workplace	3 hrs
WFED 8010/8010E	Workforce Ethics for a Technological World	3 hrs
WFED 8320/8320E	Global Innovation, Technology, and Careers	3 hrs

Approvals on File

Proposal: Area of Emphasis in Biological and Life Sciences Laboratory Management under the major in Comparative Biomedical Sciences (M.S., Non-Thesis)

Department: College of Veterinary Medicine

College: College of Veterinary Medicine

Proposed Effective Term: Spring 2018

School/College:

- College of Veterinary Medicine Associate Dean, Dr. Harry Dickerson, 4/26/2017

Graduate School:

- Graduate School Dean, Dr. Suzanne Barbour, 4/25/2017