Department of Medical and Molecular Sciences

Master of Science

Non-Thesis MS in Applied Molecular Biology and Biotechnology

Provide a brief summary of the proposed program and describe the rationale:\*

The MS in AMBB program is a “locked step”,  51-credit blended (having both online, hybrid and face-to-face instruction) master’s degree for individuals holding a Bachelor of Science in biology, chemistry, or a related major, who do not hold a Bachelor’s degree in Biotechnology or Applied Molecular Biology, and who lack the skills set to pursue a career as a laboratory scientist in the biotechnology, biopharmaceutical or molecular diagnostic sectors.  Through this degree, students will gain specialized, in-depth professional hands-on skills and leadership competencies preparing them to succeed within the increasingly competitive biomedical sciences sector. The MS in AMBB  will allow students to gain defined “bench-focused” technical competency, in addition to training in regulatory and fiscal affairs that impact laboratory management.   Following graduation students can apply their knowledge to meet specific career goals whether it be laboratory practice in biotechnology, molecular diagnostic or academic research settings.

Upon completion, these individuals will be prepared to take a national examination for certification as a technologist in molecular biology offered through the American Society for Clinical Pathology (ASCP).

List only New Courses that are being currently submitted for this program:\*

MEDT 641 Applied Molecular Biology & Biotechnology Practicum I, 3crs.

MEDT 642 Applied Molecular Biology & Biotechnology Practicum II, 3crs.

MEDT 643 Applied Molecular Biology & Biotechnology Practicum III, 3crs.

MEDT 644 Applied Molecular Biology & Biotechnology Practicum IV, 3crs.

List any courses from outside departments being utilized in the curriculum:\*

None

Resolution:\*

RESOLUTION, for the establishment of a new non-thesis MS in Applied Molecular Biology and Biotechnology. This program will be administered through the Department of Medical and Molecular Sciences in the College of Health Sciences.

WHEREAS, the Department of Medical and Molecular Sciences (MMS) in the College of Health Sciences offers successful laboratory-based educational programs in the area of Medical Laboratory Sciences and Applied Molecular Biology and Biotechnology, which offer students skills and knowledge necessary for careers in the biomedical and clinical laboratory sciences based  professions, and

WHEREAS, the Department of Medical and Molecular Sciences offers the MS in Medical Sciences to meet the needs of individuals seeking management and leadership positions in the laboratory-based professions, and

WHEREAS, the Department of Medical and Molecular Sciences has received many inquiries over the last several years from individuals who are interested in pursuing an entry-level technologist MS degree in the Applied Molecular Biology & Biotechnology sector, and

WHEREAS, graduates of this MS degree in Applied Molecular Biology and Biotechnology will have specialized, in-depth professional skills knowledge and will be highly prepared to succeed within the increasingly complex biomedical laboratory science-based sector, and

WHEREAS, graduates of the MS degree in the Applied Molecular Biology & Biotechnology will receive preparation to sit for the ASCP national certification examination in Molecular Diagnostics, MB(ASCP), and

WHEREAS, the existing undergraduate and graduate programs within the Department of Medical Laboratory Science already provide the foundational coursework, laboratory teaching and administrative framework for such a program, and,

WHEREAS, the program has received the full support of faculty as well as the faculty in all programs affected by the curriculum, and

WHEREAS, the proposed major contributes to one of the milestones on the University’s “path to prominence” to achieve excellence in professional education;

be it, therefore, RESOLVED, that the Faculty Senate recommends the approval of the establishment of a new non-thesis MS in Applied Molecular Biology and Biotechnology

Prospective Curriculum:\*

Applied Molecular Biology and Biotechnology Core

Courses

MEDT 608 Molecular Preparatory Techniques (2cr.)

MEDT 625 Basic Molecular Techniques (4cr.)

MEDT 626 Protein Purification and Characterization (3cr.)

MEDT 627 Flow Cytometry (2cr.)

MEDT 635 Practical Genomics, Proteomics & Bioinformatics (3cr.)

MEDT 651 Cell and Tissue Culture Techniques (4cr.)

MEDT 690 Clinical and Molecular Cell Biology (3cr.)

MEDT 691 Human Molecular Genetics (3cr.)

MEDT 692 Application of Molecular Diagnostics Techniques (3cr.)

MS Graduate Core

Courses

MEDT 603 Research Design (3cr.)

MEDT 605 Regulatory and Fiscal Issues in Laboratory Management (3cr.)

MEDT 815 Contemporary Topics Research (6cr.)

Practical Internships

Description

MEDT 641 Applied Molecular Biology & Biotechnology Practicum I - 3 credits

MEDT 642 Applied Molecular Biology & Biotechnology Practicum II -  3 credits

MEDT 643 Applied Molecular Biology & Biotechnology Practicum III -  3 credits

MEDT 644 Applied Molecular Biology & Biotechnology Practicum IV -  3 credits

Last Revised for 2019-2020 Academic Year

MEDT - 603 - Research Design (3cr.)

MEDT - 605 - Regulatory and Fiscal Issues in Laboratory Management (3cr.)

MEDT - 608 - Molecular Preparatory Techniques (2cr.)

MEDT - 625 - Basic Molecular Techniques (4cr.)

MEDT - 626 - Protein Purification and Characterization (3cr.)

MEDT - 627 - Flow Cytometry (2cr.)

MEDT - 635 - Practical Genomics, Proteomics & Bioinformatics (3cr.)

MEDT - 651 - Cell and Tissue Culture Techniques (4cr.)

MEDT - 690 - Clinical and Molecular Cell Biology (3cr.)

MEDT - 691 - Human Molecular Genetics (3cr.)

MEDT - 692 - Application of Molecular Diagnostics Techniques (3cr.)

MEDT - 815 - Contemporary Topics Research (6cr.)