UMBC
AN HONORS UNIVERSITY IN MARYLAND

BIOTECHNOLOGY GRADUATE PROGRAMS

Rockville, MD

UMBC offers a variety of degree options for the biotechnology professional and individuals interested in pursuing a career in the biotechnology field. Combining graduate courses in life sciences with management and business courses, **UMBC's Biotechnology programs** are ideal for individuals interested in pursuing management opportunities within biotechnology, while the graduate certificate programs provide students with practical skills that can be immediately applied on the job. All courses are offered in the evening to accommodate professionals and taught by experts in the fields of biotechnology and business with oversight from an industry-led advisory board.

Our offerings include:

Master of Professional Studies (M.P.S.):

BIOTECHNOLOGY (30 Credits)

The M.P.S.: Biotechnology curriculum includes graduate coursework in the life sciences, along with courses in regulatory affairs, leadership, management, and financial management in a life science-oriented business. This program is ideal for individuals interested in pursuing career opportunities in management or regulatory affairs career opportunities in the biotechnology industry.

Post-Baccalaureate Certificates:

BIOTECHNOLOGY MANAGEMENT (12 Credits)

This four-course certificate provides a foundation in the management and business processes needed within the biotechnology field. All credits earned in this certificate may be applied to the Master of Professional Studies (M.P.S.): Biotechnology degree.

BIOCHEMICAL REGULATORY ENGINEERING (12 Credits)

This certificate in biochemical regulatory engineering provides in-depth exposure to key areas associated with bringing a biological product to market under the FDA approval process. This 12 credit program consists of four courses focusing on regulatory issues, compliance issues associated with Good Manufacturing Practices (GMP), quality control and quality assurance and facilities considerations for complying with GMP.

COSTS

Maryland Resident
Tuition per credit: $585 (plus mandatory fees)*

Non-Resident
Tuition per credit: $968 (plus mandatory fees)*

This program does not offer merit-based financial aid. For more information on tuition and fees, please visit: www.umbc.edu/sbs.

**For Academic Year 2015/2016*

ADMISSION REQUIREMENTS

For M.P.S:

- Bachelor's degree in biological sciences, biochemistry, chemistry, chemical/biochemical engineering or a bachelor's degree in another field that includes sufficient credits from relevant courses in the life sciences
- Minimum grade point average of 3.0 (on a 4.0 scale)
- Two semesters of general chemistry and two semesters of organic chemistry

For Graduate Certificates:

- Biotechnology Management Certificate: Bachelor's degree in any field
- Biochemical Regulatory Engineering: Bachelor's degree in science or a **relevent** field
- Minimum undergraduate GPA of 3.0 in a 4.0 scale

For International Students:

- Bachelor's degree in biological sciences, biochemistry, chemistry, chemical/biochemical engineering or a bachelor's degree in another field that includes sufficient credits from relevant courses in the life sciences
- TOEFL Scores: Minimum scores of 600 (PBT), 250 (CBT), 100 (IBT)
- Scores must be less than 2 years old
- IELTS Score: Minimum score of 7.5 required
- GRE scores are required unless your undergraduate degree was earned at an accredited U.S. university. The combined score of the Verbal Reasoning and Quantitative components must be at least 1230, with the Verbal Reasoning score being at least 500. Also, the Analytical Writing score should be at least 4.5

PROGRAM LOCATION:

UMBC at the Universities at Shady Grove
Camille Kendall Academic Center
9636 Gudelsky Drive
Rockville, MD 20850

DPS07102015

FOR MORE DETAILS

umbc.edu/biotechsg

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Master of Professional Studies (M.P.S.):
BIOTECHNOLOGY (30 Credits)

Degree Requirements

Life Science Courses* (15 credits)

- BTEC 650: Applied Biochemistry
- BTEC 651: Molecular and Cell Biology
- BTEC 652: Molecular Biotechnology
- BTEC 653: Applied Bioprocess Engineering
- BTEC 654: Emerging Topics in Biotechnology

** These courses must be taken in the above sequence starting in the fall semester of each academic year.*

Core Management Courses (12 credits)

- BTEC 660: Regulatory Issues in Biotechnology
- BTEC 670: Legal and Ethical Issues in the Science Profession
- BTEC 680: Financial Management
- BTEC 665: Management, Leadership and Communication

Program Electives (3 credits)

Choose one from the following:

- BTEC 662: Good Manufacturing Practices for Bioprocesses
- BTEC 685: Project Management Fundamentals
- BTEC 690: Innovation and Technology Entrepreneurship

**The first management courses must be taken in the above sequence; the fourth core management course and the elective are taken in the order determined by the semester in which the elective is taken.*

Post-Baccalaureate Certificate:
BIOTECHNOLOGY (12 Credits)

- BTEC 665: Management, Leadership and Communication
- BTEC 670: Legal and Ethical Issues in the Science Professionals
- BTEC 680: Financial Management for Science Professionals
- BTEC 685: Project Management Fundamentals

All credits earned in this certificate may be applied to the Master of Professional Studies (M.P.S.): Biotechnology degree.

Post-Baccalaureate Certificate:
BIOCHEMICAL REGULATORY ENGINEERING (12 Credits)

- ENCH 660: Regulatory Issues in Biotechnology
- ENCH 662: Good Manufacturing Practices for Bioprocesses
- ENCH 664: Quality Control & Quality Assurance for Biotechnology Products
- ENCH 666: Design, Construction and Validation of GMP Biotechnology Facilities

WHY BIOTECHNOLOGY?

• The global environment demands skilled engineers who understand the essential principles of management and business.

• Combining technical and business skills gives engineers a competitive advantage. Engineering management professionals are trained to understand not just how a system works technically, but also how these systems fit in and relate to others.

• Organizations seek engineering experts who can understand the complexity of technological and business-related challenges and who can create solutions to solve them.

WHY UMBC?

- This established academic and research expertise in the biosciences provides a foundation for programs in biotechnology management and biochemical regulatory engineering.
- For six years running (2009-2014), UMBC was ranked #1 in the U.S. News and World Report's list of "national up-and-coming" universities.

INTERNATIONAL STUDENTS

The M.P.S. Biotechnology can accommodate the full-time course load required for international students. To maintain the course load requirements, international students are required to take two additional elective courses.

PROFESSIONAL EXPERIENCE PROGRAM (PEP) OPTION

Students interested in acquiring professional experience by working as an apprentice with a company operating in a specific area of biotechnology may apply to the PEP. The option to earn academic credit is available.