

FLORIDA ATLANTIC UNIVERSITY™

UGPC APPROVAL _____
 UFS APPROVAL _____
 CATALOG _____

Graduate Programs—PROGRAM CHANGE REQUEST

DEPARTMENT: **BIOLOGY**

COLLEGE: **SCIENCE**

PROGRAM NAME: **COMBINED DEGREE PROGRAM: BS BIOLOGY TO MS BIOLOGY**

EFFECTIVE DATE
 (PROVIDE TERM/YEAR)

PLEASE EXPLAIN THE REQUESTED CHANGE(S) AND OFFER RATIONALE BELOW AND/OR ATTACHED:

THE **BS/MS** IN **BIOLOGY** COMBINED DEGREE PROGRAM LANGUAGE HAS BEEN ALTERED TO CONFORM WITH THE **SACS** REQUIREMENTS. THE NEW LANGUAGE IS SHOWN IN RED. NEW COURSES DEVELOPED AND LISTED IN THE CATALOGUE SINCE THE LAST UPDATE WHICH WERE APPROVED BY THE DEPARTMENT COMMITTEES ARE ALSO LISTED IN RED.

Faculty contact, email and complete phone number:

croberts@fau.edu

Consult and list departments that might be affected by the change and attach comments.

NA

Approved by:

Department Chair: _____

College Curriculum Chair: _____

College Dean: _____

UGPC Chair: _____

Graduate College Dean: _____

UFS President: _____

Provost: _____

Date:

Email this form and syllabus to UGPC@fau.edu **one week before** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

Combined B.S./M.S. with Major in Biological Sciences Molecular Biology and Biotechnology path of study

This combined degree program leads to both bachelor's (B.S.) and master's (M.S.) degrees in Biological Sciences with an emphasis in molecular biology and biotechnology. It is a laboratory intensive curriculum that provides hands-on training for students who are interested in a career in the rapidly expanding field of biotechnology. This program will also provide excellent preparation for pursuing advanced degree studies.

The combined degree program is 153-156 credits, 120 for the undergraduate degree and 33-36 for the master's degree, with a maximum of 12 credits of graduate coursework used to satisfy both degrees. See specific program requirements.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual* (see www.fau.edu/registrar/tsm.php).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Requirements and Eligibility

Students would typically begin taking graduate courses in their senior year that would apply to both their B.S. and M.S. degrees. The program can be completed in five years by allowing 12 credits of graduate-level courses to fulfill course requirements for both the B.S. and M.S. degrees. Students must maintain a minimum GPA of 3.0 to remain in the program.

The program requires completion of a research project (6 credits). While there is no formal requirement for a thesis, the research must be described in both a written report and an oral presentation to an advisory committee.

Students are expected to work in a research lab during their last two years of the program completing Directed Independent Study and Thesis credits. The research may be completed in the laboratory of any member of the Center for Molecular Biology and Biotechnology (CMBB). Additionally, the research may be done under the direction of a faculty member in Biological Sciences if the project is appropriate to molecular biology and biotechnology. Faculty in other departments may mentor students with approval of the director or the chair.

Prospective students must formally apply to this graduate program and meet all admission requirements: a minimum undergraduate science GPA of 3.0 and a minimum GRE score of 151 (verbal) and 148 (quantitative). Students should take the GRE before the end of their junior year.

Curriculum

The core curriculum for students in the combined B.S./M.S. degree program is the same as for all Biological Sciences students in a bachelor of science (B.S.) program. The difference in this combined program is the emphasis on, **Molecular Biology and Biotechnology**.

Microbiology, Molecular Biology and Biotechnology Core and Elective courses		
Practical Cell Neuroscience	PCB 4843C	3
Molecular Genetics	PCB 4522	4
Genetics Lab	PCB 4067L	3
Molecular Genetics of Aging	BSC 4022	3
Immunology	PCB 4233	3

Commented [DB1]: Should probably keep minimum GPA consistent with other grad program admission requirements.

Commented [DB2]: At this time, Biochemistry 2 and Biochemistry Lab are not approved electives. Biochemistry Lab is required for the biotechnology certificate, but I lost my attempt to get it approved as an elective.

Commented [CR3R2]: I deleted them

Commented [DB4]: A number of existing and new courses that are being added or are in the process of being approved would be appropriate – Genes and Development; Molecular Genetics of Aging; Human Neuroanatomy; Practical Cell Neuroscience, Bioinformatics, Plant Biotechnology, Cellular Neuroscience and Disease, Immunology, and Genetics Lab. Molecular Genetics is being brought back starting spring 2016.

Commented [CR5R4]: I added the ones I could find in the catalog. I

Cellular Neuroscience and Disease	PCB 4842	3
Plant Biotechnology	BOT 4734C	3
Biotechnology 1 Lab	BSC 4403L	2
Biotechnology 2 Lab	BSC 4427L	2
Organic Chemistry 2	CHM 2211	3
Organic Chemistry Lab	CHM 2211L	2
General Microbiology and Lab	MCB 3020, 3020L	4
Genetics	PCB 3063	4

Completion of the courses listed above as well general education courses required of all students will fulfill the B.S. requirements in the Microbiology, Molecular Biology and Biotechnology track, in addition to the 15 credits identified in the Biotechnology certificate program. Those six courses must also be taken to fulfill the B.S./M.S. program.

Graduate courses that count toward both B.S. and M.S. requirements-12 credits
 Students may select from the graduate courses listed:

Advanced Biochemistry	BCH 6740	3
Bioinformatics	BSC 6458C	4
Directed Independent Study	BSC 6905	1-3
Instrumentation	CHM 6157	3
Advanced Molecular Genetics of Aging	PCB 5246	3
Advanced Immunology	PCB 6236	3
Neuroscience 1	PSB 6345	3
Neuroscience 2	PSB 6346	3 or
Neurophysiology	PCB 5835C	3
Advanced Neurophysiology Lab	PCB 6837L	3
Cellular Neuroscience and Disease	PCB 6849	3
Principles of Neuroscience	PSB 6037	3
Practical Cell Neuroscience	BSC 5471C	3
Human Neuroanatomy	Z00 6748	3

Students who complete these courses but decide not to pursue the M.S. degree would be required to take one additional 3-credit elective (approved by their faculty advisor) to fulfill the B.S. requirements.

Additional graduate-level courses-15 credits

In addition to the 12 credits of graduate courses that fulfill requirements for the B.S. degree, the student must take an additional 15 credits of graduate courses from the list shown above or other graduate courses approved by their advisory committee.

Research-6 credits

An important element of this program is the hands-on laboratory experience. This requirement is met by the formal laboratory courses as well as individual training in a research laboratory, an experience that cannot be duplicated in laboratory courses. Six credits of Master's Thesis (BSC 6971) must be completed. A formal thesis is not required, but the research must be presented as both a written report and oral presentation to an advisory committee.

Comments on Total Credits

A student could complete the requirements of this program and earn both the B.S. and M.S. degree with a minimum of 153-156 credits. Many students will likely finish with more

Commented [DB6]: New graduate courses are also being added: Practical Cell Neuroscience, Neurophysiology, Advanced Neurophysiology Lab, Cellular Neuroscience and Disease, Human Neuroanatomy; Adv. Molecular Basis of Aging. Some of these graduate courses have an associated undergraduate course. Therefore, students who have taken the undergraduate course should be encouraged to take other graduate courses. Additionally, there is an increasing number of graduate courses being offered in the medical school that are appropriate to this graduate program.

Commented [CR7R6]: I added the courses you listed. We can add others later, also the program can decide to allow other courses that are not on the list. I want to get this done so we can have this in the catalog by the end of the spring semester.

Commented [DB8]: I agree that the list of courses should be flexible. Should make it clear that courses not on this list can be taken with approval of the graduate advisor.

