

Memo

From: Department of Biology

To: Undergraduate Curriculum Committees

Subj: Combined Degree Program

The BS/ MS in Biological Sciences 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 department/program committees are also listed in red.

*Approved by:*

Department Chair: \_\_\_\_\_

College Curriculum Chair: \_\_\_\_\_

College Dean: \_\_\_\_\_

UUPC Chair: \_\_\_\_\_

Undergraduate Studies Dean: \_\_\_\_\_

UFS President: \_\_\_\_\_

Provost: \_\_\_\_\_

*Handwritten signature: Steve B...*

*Handwritten signature: Chris...*

*Handwritten initials: J E W*

*Handwritten signature: Ed Efratt 4/6/14*



## 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](http://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

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