• BIOLOGY (BIO/MRN/MIC)

Two specific Bachelor of Science degrees, Biology and Microbiology, are available for students interested in the biological sciences. The B.S. in Biology allows students to concentrate in such areas as Ecology, Cell & Molecular Biology, Physiology, and Marine Biology. The degree is preparatory for careers in such areas as teaching, agriculture, medicine, dentistry, conservation, and biotechnology, or for post-baccalaureate study in the various life sciences. The B.S. in Microbiology provides students with the broad range of courses necessary to qualify for certification by the National Registry of Microbiologists, American Society of Microbiology, and employment in microbiology and related fields.

In addition to a set of courses in biology, students must have a thorough preparation in other areas of natural sciences to be competitive for jobs or for further study beyond the baccalaureate. A modern biology curriculum is built on a foundation of mathematics, chemistry and physics. Students should study the requirements listed below and then make maximum use of the vigorous advising program maintained by the Department in structuring their programs. For advising contact the Science Advising Center, BEH 339 or call 813-974-2874.

Requirements for Entrance into either the Biology or Microbiology Programs

1. Completion of two semesters of college-level basic biology (BSC 2010 / 2010L and BSC 2011 / 2011L, or equivalents); two semesters of college-level basic chemistry (CHM 2210 / 2210L and CHM 2211 / 2211L, or equivalents); and one semester of any college-level mathematics, physics, or statistics course.

2. A cumulative GPA of at least 2.75 in the five courses listed above.

These requirements will NOT BE WAIVED for students who pass major courses beyond college-level basic biology, but do not have the necessary cumulative GPA (2.75) in the five courses listed above.

Requirements for the Biology B.S. Major

BIO

Prerequisites (State Mandated Common Prerequisites) for Students Transferring from a Community College: Students should complete the following prerequisite courses listed below at the lower level prior to entering the university. If these courses are not taken at the community college, they must be completed before the degree is granted. Unless stated otherwise, a grade of "C" is the minimum acceptable grade. BSC 1010/1010L Introduction to Biology I-Cellular Processes (with lab) Acceptable substitutes: PCB X010, PCB X011, PCB X021, PCB X131, BSC X040, BSC 2012.

BSC 1011/1011L Introduction to Biology II-Diversity (with lab) Acceptable substitutes: ZOO X010, BOT X010, BSC X041, BOT X013

CHM 1045/1045L General Chemistry I (with lab) Acceptable substitutes: ZOO X010, BOT X010, BSC X041, BOT X013

CHM 1046/1046L General Chemistry II (with lab) Acceptable substitutes: PHY 2043/2043L, PHY 2048/2048L, PHY 2049/2049L, or equivalent

CHM 2211/2211L Organic Chemistry I (with lab) Acceptable substitutes: PHY 2043/2043L, PHY 2048/2048L, PHY 2049/2049L, or equivalent

MAC X311 Calculus I Acceptable substitutes: MAC 2233, MAC 2253, MAC X281

MAC X312 Calculus II Acceptable substitutes: STA 2122, 2014, 2023, 2034, 2321 or equivalent; MAC 2234, 2254, 3282

Please be aware of the immunization, foreign language, and continuous enrollment policies of the university. This is a non-limited access program with the above courses recommended.

Required Courses for the Biology Major

1. Department of Biology Courses-minimum 40 credit hours

   a. BSC 2010 Biology I Cellular Processes (3)
      BSC 2010L Biology I Cellular Processes Laboratory (1)
      BSC 2011 Biology II Diversity (3)
      BSC 2011L Biology II Diversity Laboratory (1)

   b. PCB 3023 Cell Biology (3)
      PCB 3043 Principles of Ecology (3)
      PCB 3063 General Genetics (3)

   c. ONE of the following:
      PCB 3023L Cell Biology Laboratory (1)
      PCB 3043L Principles of Ecology Laboratory (1)
      PCS 3063L General Genetics Laboratory (1)

   d. ONE of the following (with laboratory):
      ZOO 3205C Advanced Invertebrate Zoology (4)
      ZOO 3713C Comparative Vertebrate Anatomy (4)
      ZOO 4603C Animal Embryology (4)
      ZOO 4753C Histology (4)

   e. ONE of the following (with laboratory):
      MCB 4404 Microbial Physiology and Genetics (4)
      PCB 4723 Animal Physiology (4)

   f. The remaining credit hours to meet the minimum requirements must come from among structured departmental courses that are applicable to the major and BCH 3023. At least eight (8) of these credit hours must be at the 4000 level or higher.

   g. A maximum of four (4) credit hours of Undergraduate Research (BSC 4910) or Biology Honors Thesis (BSC 4970) may be applied.

   h. A minimum of 20 hours of Biology courses must be taken in residency and be applicable to the major.

2. Supporting Courses in the Natural Sciences-minimum 32 credit hours

   a. CHM 2251 Organic Chemistry I (4)
      CHM 2252 Organic Chemistry II (4)
   OR
      MAC 2241 Life Sciences Calculus I (4)
      MAC 2242 Life Sciences Calculus II (4)

   b. CHM 2253 General Chemistry I (4)
      CHM 2254 General Chemistry II (4)
   OR
      MAC 2281 Engineering Calculus I (4)
      MAC 2282 Engineering Calculus II (4)

   c. CHM 2254L General Chemistry I Laboratory (1)
      CHM 2255L General Chemistry II Laboratory (1)
   OR
      MAC 2311 Calculus I (4)
      MAC 2312 Calculus II (4)

   d. CHM 2256 Organic Chemistry III (4)
      CHM 2257 Organic Chemistry IV (4)
   OR
      MAC 2411 Life Sciences Calculus III (4)
      MAC 2412 Life Sciences Calculus IV (4)

   e. CHM 2258 Intermediate Organic Chemistry I (4)
      CHM 2259 Intermediate Organic Chemistry II (4)
   OR
      MAC 2511 Calculus III (4)
      MAC 2512 Calculus IV (4)

   f. CHM 2259L Organic Chemistry III Laboratory (1)
      CHM 2260L Organic Chemistry IV Laboratory (1)
   OR
      MAC 2611 Life Sciences Calculus III Laboratory (1)
      MAC 2612 Life Sciences Calculus IV Laboratory (1)

   g. CHM 2260 Organic Chemistry V (4)
      CHM 2261 Organic Chemistry VI (4)
   OR
      MAC 2711 Calculus V (4)
      MAC 2712 Calculus VI (4)

   h. CHM 2261L Organic Chemistry V Laboratory (1)
      CHM 2262L Organic Chemistry VI Laboratory (1)
   OR
      MAC 2811 Life Sciences Calculus V Laboratory (1)
      MAC 2812 Life Sciences Calculus VI Laboratory (1)
4. Free Elective Courses needed to complete 120 credit hours.

3. Liberal Arts Courses-minimum 45 credit hours

Requirements for the Biology B.S. Major with a Concentration in Marine Biology (MRN)

Prerequisites (State Mandated Common Prerequisites) for Students Transferring from a Community College: Students should complete the following prerequisite courses listed below at the lower level prior to entering the university. If these courses are not taken at the community college, they must be completed before the degree is granted. Unless stated otherwise, a grade of “C” is the minimum acceptable grade.

1. Department of Biology Courses-minimum 42 credit hours

   a. BSC 2010 Biology I Cellular Processes (3)
   b. BSC 2010L Biology I Cellular Processes Laboratory (1)
   c. BSC 2011 Biology II Diversity (3)
   d. BSC 2011L Biology II Diversity Laboratory (1)
   e. PCB 3023 Cell Biology (3)
   f. PCB 3043 Principles of Ecology (3)
   g. PCB 3063 General Genetics (3)
   h. OR

   i. MAC X311 Calculus I (3)
   j. Acceptable substitutes: MAC 2233, MAC 2253, MAC X281

2. Supporting Courses in the Natural Sciences-minimum 32 credit hours

   a. CHM 2045 General Chemistry I (3)
   b. CHM 2210L Organic Chemistry I (3)
   c. OR

       d. MAC 2241 Life Sciences Calculus I (4)

       e. OR

       f. MAC 2242 Life Sciences Calculus II (4)

3. Liberal Arts Courses-minimum 45 credit hours

   a. PHY 2054 General Physics (3)
   b. OR

   c. OR

   d. OR

   e. OR

4. Free Elective Courses needed to complete 120 credit hours.

5. Student applies to Marine Biology Program after meeting all entrance requirements of BIO major. In addition, a student must have a major GPA of at least 3.0 at the time of application and maintain a major GPA of at least 3.0 throughout the Program.

Requirements for the Microbiology B.S. Major (MIC)

Prerequisites (State Mandated Common Prerequisites) Students should complete the following prerequisite courses listed below at the lower level prior to entering the university. If these courses are not taken at the community college, they must be completed before the degree is granted.
Unless stated otherwise, a grade of "C" is the minimum acceptable grade.

BSC 1010/1010L Introduction to Biology I-Cellular Processes (with lab)
Acceptable substitutes: PCB X010, PCB X011, PCB X021, PCB X131, BSC X040, BSC 2012

BSC 1011/1011L Introduction to Biology II-Diversity (with lab)
Acceptable substitutes: ZOO X010, BOT X010, BSC X041, BOT X013

CHM 1045/1045L General Chemistry I (with lab)

CHM 1046/1046L General Chemistry II (with lab)

CHM 2210/2210L Organic Chemistry I (with lab)
Acceptable substitutes: PHY 2043/2043L, PHY 2048/2048L, PHY 2049/2049L, or equivalent

CHM 2211/2211L Organic Chemistry II (with lab)
Acceptable substitutes: PHY 2053/2053L, PHY 2048/2048L, PHY 2049/2049L, or equivalent

MAC X311 Calculus I

Please be aware of the immunization, foreign language, and continuous enrollment policies of the university. This is a non-limited access program with the above courses recommended.

Required Courses for the Microbiology Major
1. Department of Biology Courses-minimum 42 credit hours
   a. BSC 2010 Biology I Cellular Processes (3)
      BSC 2010L Biology I Cellular Processes Laboratory (1)
      BSC 2011 Biology II Diversity (3)
      BSC 2011L Biology II Diversity Laboratory (1)
   b. PCB 3023 Cell Biology (3)
      PCB 3023L Cell Biology Laboratory (1)
      PCB 3043 Principles of Ecology (3)
      PCB 3063 General Genetics (3)
   c. MCB 3030 General Microbiology (4)
      MCB 4115 Determinative Bacteriology (5)
      MCB 4404 Microbial Physiology and Genetics (4)
      MCB 4404L Microbial Physiology and Genetics Laboratory (1)
   d. Ten (10) hours from the following list:
      BOT 4434C Mycology (3)
      MCB 4502 Virology (3)
      MCB 4910 Microbiology Undergraduate Research (1-4)
      MCB 4934 Seminar in Microbiology (1)
      MCB 5206 Public Health and Pathogenic Microbiology (3)
      MCB 5600 Applied and Environmental Biology (3)
      MCB 5815C Medical Mycology (3)
      PCB 5235 Principles of Immunology (3)
      ZOO 5235 Parasitology (3)
      BCH 3023L Basic Biochemistry Laboratory (2)
   e. A maximum of four (4) credit hours of Undergraduate Research (MCB 4910) or Biology Honors Thesis (BSC 4970) may be applied.
   f. A minimum of 20 hours of Biology courses must be taken in residency and be applicable to the major.

2. Supporting Courses in the Natural Sciences-minimum 35 credit hours
   a. CHM 2045 General Chemistry I (3)
      CHM 2045L General Chemistry I Laboratory (1)
      CHM 2046 General Chemistry II (3)
      CHM 2046L General Chemistry II Laboratory (1)
   b. CHM 2210 Organic Chemistry I (3)
      CHM 2210L Organic Chemistry I Laboratory (2)
      CHM 2211 Organic Chemistry II (3)
      CHM 2211L Organic Chemistry II Laboratory (2)
   c. MAC 2241 Life Sciences Calculus I (4)
      MAC 2242 Life Sciences Calculus II (4)
      OR
      MAC 2281 Engineering Calculus I (4)
      and
      MAC 2282 Engineering Calculus II (4)
      OR
      MAC 2311 Calculus I (4)
      and
      MAC 2312 Calculus II (4)
      OR
      MAC 2241 Life Sciences Calculus I (4)
      and
      STA 2023 Introductory Statistics I (4)
   d. PHY 2048 General Physics I (3)
      PHY 2048L General Physics I Laboratory (1)
      PHY 2049 General Physics II (3)
      PHY 2049L General Physics II Laboratory (1)
      OR
      PHY 2053 General Physics (3)
      PHY 2053L General Physics Laboratory (1)
      PHY 2054 General Physics (3)
      PHY 2054L General Physics Laboratory (1)
   e. BCH 3023 Introductory Biochemistry (3)

3. Liberal Arts Courses-minimum 45 credit hours
4. Free Elective Courses needed to complete 120 credit hours.

MINIMUM GRADE FOR MAJORS
A student must receive a "C" grade or better in all Department of Biology courses and Supporting Courses in the Natural Sciences, except if they are used as Free Elective courses. This specification applies to both USF and transfer courses. D and F grades earned in attempting to satisfy major requirements will be used in calculating the GPA, except if they are removed by grade forgiveness.

BIOLOGY HONORS PROGRAM
The Honors Program has been placed on inactive status. This program is to be reinstated at a later date.