

## REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE IN BIOTECHNOLOGY AND BIOINFORMATICS (33-35 UNITS)

(Pending approval from the Chancellor's Office and offered through California State University Channel Islands Extended Education Program)

### ADMISSION REQUIREMENTS:

- Applicants must have a BS/BA degree in Biology, Computer Science, Chemistry, Biochemistry, or Mathematics. Alternatively, they must have a BA/BS degree in any field and equivalent work experiences in one of the above fields. The prerequisite courses for the graduate level courses should be completed at the undergraduate level or before enrolling in the set required courses after conditional admission.
- Applicants seeking admission to the professional MS in Biotechnology and Bioinformatics program must be officially accepted into the CSUCI academic program.
- Applicants must declare themselves as graduate students in the professional MS degree program in Biotechnology and Bioinformatics.
- Applicants will be evaluated by the program admissions committee which will consider the applicants in the context of the total applicant pool using our general admission standards. No arbitrary grade point or test score will be used in the evaluation process. However, the following materials are required for our evaluation and admission process.
- Applicants must submit to the program their transcript from their undergraduate institution, Graduate Record Examinations (GRE) General Test scores or the Medical College Admission Test (MCAT) scores.
- Applicants who have received their undergraduate degrees from a university where English is not the language of instruction, or have studied fewer than two years at a university where instruction is in English, must submit to the program their Test of English as a Foreign Language (TOEFL) scores for evaluation.
- A one page "Statement of Purpose" from the applicant and two letters of recommendations from people who are able to judge the applicant's capacity for both academic and professional success should be submitted to the program for evaluation.
- Applicants will be interviewed by the program admissions committee before admission to the program.
- Although a BS/BA in the natural or life science, computer science, or mathematics is likely to provide the most thorough academic preparation

for our program, it is not a prerequisite for admission. Relevant work experience in fields of biotechnology, computing, pharmaceuticals, medical, environmental, and agricultural biotechnology, clinical trials, regulatory affairs, intellectual property law, and management in biotechnology is looked upon favorably. However, as our program demands sophisticated technical training which requires a comparable level of requisite knowledge and skills, some deficiency in academic preparation among applicants who have relevant work experience may be offered conditional admission, contingent upon successful completion of prerequisite academic work specified by the admissions committee.

- Once admitted, students must remain in good academic standing throughout the duration of their enrollment in CSUCI.
- Students must complete and fulfill the requirements of the degree program within a designated period specified by the university.

### DEGREE REQUIREMENTS:

#### COMMON CORE COURSES (19 UNITS):

BINF	500	DNA and Protein Sequence Analysis (3)
BINF	501	Biological Informatics (3)
BIOL	502	Techniques in Genomics and Proteomics (2)
BIOL	503	Biotechnology Law and Regulation (3)
MGT	471	Project Management (3)
BIOL	600	Team Project (4)
BIOL	601	Seminar Series in Biotechnology and Bioinformatics (1)

#### FOR BIOTECHNOLOGY EMPHASIS (14 UNITS):

##### REQUIRED COURSES (7 UNITS):

BIOL	504	Molecular Cell Biology (3)
BIOL	505	Molecular Structure (4)

##### ELECTIVES (7 UNITS):

*A minimum of 7 units chosen from the following courses and/or from the elective courses under the Bioinformatics Emphasis:*

BIOL	506	Molecular Evolution (4)
BIOL	507	Pharmacogenomics and Pharmacoproteomics (3)
BIOL	508	Advanced Immunology (4)
BIOL	509	Plant Biotechnology (4)
MGT	421	Human Resource Management (3)

**FOR BIOINFORMATICS EMPHASIS**  
**(15-16 UNITS):**

**REQUIRED COURSES (9 UNITS):**

BINF 510 Database Systems for Bioinformatics (3)  
BINF 511 Computational Genomics (3)  
BINF 513 Programming for Bioinformatics (3)

**ELECTIVES (6-7 UNITS):**

A minimum of two courses chosen from the following and/or from the elective courses under the Biotechnology Emphasis, with at least one course in the BINF category:

BINF 512 Algorithms for Bioinformatics (3)  
BINF 514 Statistical Methods in Computational Biology (3)  
PHYS 445 Image Analysis and Pattern Recognition (3)  
MGT 421 Human Resource Management (3)

**PROPOSED COURSE OF STUDY:**

**FOR BIOTECHNOLOGY EMPHASIS:**

**Year 1 (15 units)**

**Semester 1**

BINF 500 DNA and Protein Sequence Analysis (3)  
BINF 501 Biological Informatics (3)  
BIOL 502 Techniques in Genomics and Proteomics (2)

**Semester 2**

BIOL 503 Biotechnology Law and Regulation (3)  
MGT 471 Project Management (3)  
BIOL 601 Seminar Series in Biotechnology and Bioinformatics (1)

**Year 2 (18 units)**

**Semester 1**

BIOL 504 Molecular Cell Biology (3)  
BIOL 505 Molecular Structure (4)  
Electives (3)

**Semester 2**

BIOL 600 Team Project (4)  
Electives (4)

**FOR BIOINFORMATICS EMPHASIS:**

**Year 1 (15 units)**

**Semester 1**

BINF 500 DNA and Protein Sequence Analysis (3)  
BINF 501 Biological Informatics (3)  
BIOL 502 Techniques in Genomics and Proteomics (2)

**Semester 2**

BIOL 503 Biotechnology Law and Regulation (3)  
MGT 471 Project Management (3)  
BIOL 601 Seminar Series in Biotechnology and Bioinformatics (1)

**Year 2 (19-20 units)**

**Semester 1**

BINF 510 Database Systems for Bioinformatics (3)

BINF 513 Programming for Bioinformatics (3)

**Semester 2**

BINF 511 Computational Genomics (3)

BIOL 600 Team Project (4)

Electives (6-7)