

Department of Software Engineering  
 Building 70 # 1690  
 Phone: (585) 475-5461

Application Domain Description

**UNDERGRADUATE**

*Name of domain:* Bioinformatics

Bioinformatics represents the marriage of biotechnology and the computing sciences. Bioinformaticists use computers to analyze, organize, and visualize biological data in ways that increase our understanding of this data and lead to new discoveries. This application domain will provide you with foundational knowledge in biology that will assist you when you develop applications in this domain.

A major aspect of current bioinformatics work is developing better search algorithms and more efficient mechanisms for assessing large quantities of data. These represent architectural challenges for the software engineer when trying to satisfy the quality requirements for an application. With new algorithms being developed regularly, maintaining overall design modularity is important.

#### Courses

<i>Course number</i>	<i>Course title</i>	<i>Prerequisites</i>
BIOL-130	Introduction to Bioinformatics	
BIOL-201	Cellular and Molecular Biology	BIOL-102
BIOL-330	Bioinformatics	BIOL-201

#### Domain Prerequisites

<i>Course number</i>	<i>Course title</i>
BIOL-102	General Biology II (take as your science elective)

#### *Considerations*

It is recommended that you take the prerequisite biology course as your science elective. You need to carefully plan your schedule in advance because some of these courses may be offered only once per year.

Before you start on an application domain you should work through the impacts on your schedule. There may be a need to coordinate your co-op blocks based on the semesters in which courses are typically offered as well as considering course pre-requisite chains required within the application domain. Be sure to check with the sponsoring department to obtain the latest information on course prerequisites, scheduling, and registration constraints. Before embarking on a minor you should meet with the department sponsoring the minor to review their current minor requirements, register for the minor, and review scheduling strategies.

*Last reviewed:* : 01/31/2014