FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	BSC 2435
COURSE TITLE:	Introduction to Bioinformatics
PREREQUISITE(S):	BSC 1404C
COREQUISITE(S):	None
CREDIT HOURS:	3
CONTACT HOURS/WEEK:	3
CONTACT HOUR BREAKDOWN:	
Lecture/Discussion:	3
Laboratory:	
Other:	
FACULTY WORKLOAD POINTS:	3
STANDARDIZED CLASS SIZE ALLOCATION:	30

COURSE DESCRIPTION:

This course presents students with the fundamental knowledge and skills of bioinformatics. Specific topics to be covered include: data file formats, accessing public databases for retrieval and submission, analysis using common tools, and scripting.

SUGGESTED TEXT(S):	Discovering Genomics, Proteonomics and Bioinformatics; Campbell and Heyer, 2nd edition or higher.
IMPLEMENTATION DATE:	Fall Term, 2003 (20041)
REVIEW OR MODIFICATION DATE:	Fall Term, 2006 (20071) Fall Term, 2008 (20091) – Outline Review 2007

COURSE TOPICS		CONTACT HOURS PER TOPIC
I.	Overview of Macromolecules	3
II.	Relational Databases	6
III.	Biological Research on the Web	3
IV.	Sequence Alignment	6
V.	Visualizing and Predicting Protein Structures	6
VI.	Tools for Genomics and Proteomics	3
VII.	Automating Data Analysis with Scripting	6
VIII.	BlastN	6
IX.	BlastP	6

PROGRAM TITLE: Biotechnology Laboratory Technology

COURSE TITLE: Introduction to Bioinformatics

CIP NUMBER: 1626.061600

LIST PERFORMANCE STANDARD ADDRESSED:

NUMBER(S): TITLES(S):

1.1 Communicate in a professional manner.
1.1.1 Ability to interact with vendors, colleagues, scientists
1.1.2 Notify appropriate persons about problems and observations
1.1.3 Coordinate tasks with coworkers
1.1.4 Make oral and written presentations
1.2.1 Comprehend and use technical vocabulary
1.2.2 Document results at the time of performance
1.4.1 Perform computerized research and web searches
1.4.2 Read technical literature
1.4.3 Identify basic reference sources in biotechnology
1.5.1 Perform basic applications in work processing, spreadsheets, databases, presentations, and project management
1.5.2 Navigate the Internet

3.1.2 Recognize and follow documentation requirements
3.1.3 Design and troubleshoot procedures and/or tests
3.1.4 Prioritize and perform multiple tasks in a timely manner

5.1.1 Identify decision to be made and compare alternatives
5.1.2 Make decision based on values and goals and evaluate decision made
5.2.1 Diagnose problem, its urgency, and causes
5.2.2 Be sensitive to multicultural and nonsexist dimensions of problem solving
5.2.3 Explore possible solutions to a problem and compare/contrast advantages
5.2.4 Determine appropriate action; implement it and evaluate results

Florida State College At Jacksonville

Course Learning Outcomes & Assessment For All College Credit Courses

NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

Section 1

COURSE PREFIX AND NUMBER: BSC 2435C

SEMESTER CREDIT HOURS: 3

COURSE TITLE: Introduction to Bioinformatics

Section 2

TYPE OF COURSE: (Click on the box to check all that apply)

- ☐ AA Elective
- ☒ AS Required Professional Course
- ☐ College Prep
- ☐ AS Professional Elective
- ☐ AAS Required Professional Course
- ☐ Technical Certificate
- ☐ Other _____
- ☐ General Education: (For General Education courses, you must also complete Section 3 and Section 7)

Section 3 (If applicable)

INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:

- ☐ Communication
- ☐ Social & Behavioral Sciences
- ☐ Mathematics
- ☒ Natural Sciences
- ☐ Humanities

Section 4

INTELLECTUAL COMPETENCIES:

- ☒ Reading
- ☒ Speaking
- ☒ Critical Analysis
- ☒ Quantitative Skills
- ☒ Scientific Method of Inquiry
- ☒ Writing
- ☒ Listening
- ☒ Information Literacy
- ☒ Ethical Judgment
- ☒ Working Collaboratively

Section 5

	LEARNING OUTCOMES	METHOD OF ASSESSMENT
•	Explain and apply principles of software management required for biological databases.	Written tests, reports and/or use of equipment to demonstrate student competency in field.
•	Demonstrate knowledge of scientific method.	Formulate problem, make observations, derive and test hypothesis and make conclusions.
•	Communicate scientific ideas through oral or written assignments.	Students use analytical reasoning skills to solve problems on written tests and/or laboratory work.
•	Interpret scientific models such as formulas, graphs, tables and schematics, draw inferences from them and recognize their limitations.	Written reports of lab experiments and/or written tests demonstrate student competency in the application of scientific knowledge.
•	Demonstrate problem solving methods in situations that are encountered outside of the classroom.	Students use demonstrations, group discussions, written tests, laboratory reports, research projects and/or field experiences to illustrate competence in recognizing and evaluating various scientific processes.
•	Demonstrate proper laboratory technique including safety in the use and care of laboratory equipment and materials.	Results from laboratory work and experiments demonstrate student awareness of science and society.

Section 6

Name of Person Completing This Form: Kevin Pegg Date: 11/01/07

SECTION 7 MUST BE COMPLETED FOR ALL GENERAL EDUCATION COURSES.

Section 7 **KNOWLEDGE**	*Primary*	*Secondary*	*N/A*	**VALUE**	*Primary*	*Secondary*	*N/A*
A. Global and Historical Knowledge & Understanding	☐	☒	☐	Intellectual honesty	☒	☐	☐
• Comprehends a general knowledge of the nature, origins and contributions of major civilizations	☐	☒	☐	Curiosity and openness to new ideas	☒	☐	☐
• Comprehends the workings and interrelations of personal, business and government economies	☐	☐	☒	Recognition of one's own creative potential	☒	☐	☐
• Comprehends political, social and economic systems and their effects upon society	☐	☒	☐	Acceptance of and respect for differences among people and cultures	☒	☐	☐
B. Cultural and Aesthetic Knowledge and Understanding	☐	☒	☐				
• Comprehends the contributions of the arts and humanities to the human experience on a personal, national or global level	☐	☐	☒	Civic Engagement	☐	☒	☐
• Comprehends the historical development of the arts and sciences	☐	☒	☐	Lifelong Learning	☒	☐	☐
• Comprehends religious and cultural systems and their effects upon society	☐	☐	☒				
C. Human Awareness and Understanding	☐	☒	☐				
• Comprehends the dynamics of human behavior and the process of increasing self-awareness, growth and development	☐	☒	☐				
• Comprehends the stages of human development and the dynamics of human relationships in diverse cultures	☐	☒	☐				
• Comprehends the factors that promote physical, mental and social well-being	☒	☐	☐				
D. Mathematics, Science and Technology	☒	☐	☐				
• Comprehends the basic concepts and investigative processes of the natural sciences	☒	☐	☐				
• Comprehends the breadth, significance and development of the mathematical sciences	☒	☐	☐				
• Comprehends the ways science and technology have shaped and continue to reshape human cultures and the environment	☒	☐	☐				