COURSE DESCRIPTION:

MCB6318. Comparative Microbial Genomics. Credits: 1. Methods to allow experimental scientists lacking computer programming skills to efficiently use the genomic and post-genomic data that is freely available over the web. Examples will be mainly taken from the field of microbial metabolism and regulation.

PREREQUISITE COURSES: PCB 4522 Molecular Genetics and BSC4942 or BSC6459

COURSE OBJECTIVES:

• The students will be able to perform database search in order to identify genes that are physically linked or that follow specific phylogenetic distribution patterns.
• The students will be able to use database that allow to conduct multiple and complex queries.
• The students will be able to extract information related to gene or protein expression from databases and use it as building block for research projects.
• The students will be able to use databases to search and identify structural homolog or catalytic domains in proteins to elaborate upon the function of unknown proteins.
• The students will apply these methods to current issues in Microbial physiology and metabolism.

STUDENT RESPONSIBILITIES:

ATTENDANCE:

Class attendance is required to achieve the objectives of this course.
DEADLINES:

Students are expected to meet the deadlines for their weekly assignments and read the required material BEFORE class.

STUDENT EVALUATION:
Students will be evaluated on the basis of
Homework and in class exercises 20%
BEFORE each class you will need to spend 4-5 hours to prepare and read and turn in exercise sheets
During each class, you will work on exercises some will be turned in for credit.

In class participation 10%
Your instructors will evaluate how active, curious and energetic you are in class.

Class Paper 70%
(groups of 3)
- Weekly updates (10%)
- Written (30%) due December 11, 5pm
- Oral (30%) 20 minutes talk, presented in class

Final grades will be based on the following performance standard (250 points total):

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<th>Percentage</th>
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<td>92 - 100%</td>
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COURSE SCHEDULE:
Module 1 Linking gene and function
Nov 5 Class 1 de Crécy-Lagar – From gene to pathway and from pathway to gene
Nov 10 Class 2 de Crécy-Lagar – Using comparative genomic methods to identify missing genes

Module 2 Analyzing genome wide data
Nov 12 Class 3 de Crécy-Lagar – Overview of genome wide data analysis in Bacteria and Plants
Nov 17-Class 4 de Crécy-Lagar – Visualization tools (Mapping data to phylogenetic trees, comparing logos, etc )
Nov 19-Class 5 Lorca - Regulatory sites sites and transcriptome

Module 3 Mining 3D structures
Nov 24-Class 6 Lorca – From structure to function
Dec 1-Class 7 Lorca - Mining protein structure databases

Module 4 Class Projects
Dec 3-Class 8 Oral presentations Class papers

REFERENCE TEXTBOOKS:

Additional READINGS:

Research articles, book chapters and reviews will be assigned throughout the course. Some examples include the following:


Academic Honesty, Software Use, UF Counseling Services, Services for Students with Disabilities

In 1995 the UF student body enacted a new honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor Code: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean or Student Honor Court.

(Source: 2007-2008 Undergraduate Catalog)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.
Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university’s counseling resources. Both the Counseling Center and Student Mental Health Services provide confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance. The Counseling Center is located at 301 Peabody Hall (next to Criser Hall). Student Mental Health Services is located on the second floor of the Student Health Care Center in the Infirmary.

- University Counseling Center, 301 Peabody Hall, 392-1575, www.counsel.ufl.edu
- Career Resource Center, CR-100 JWRU, 392-1602, www.crc.ufl.edu/
- Student Mental Health Services, Rm. 245 Student Health Care Center, 392-1171, www.shcc.ufl.edu/smhs/

  Alcohol and Substance Abuse Program (ASAP)

  Center for Sexual Assault / Abuse Recovery & Education (CARE)

  Eating Disorders Program

  Employee Assistance Program

  Suicide Prevention Program

Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

0001 Reid Hall, 392-8565, www.dso.ufl.edu/drc/