

CAP 5510 (Bioinformatics)

1. ***Catalog Description*** See UF course catalog.

2. ***Pre-requisites and Co-requisites***

I will assume that you have already taken data structures and algorithms courses and you are comfortable with basic computer programming (e.g., with C or Java).

3. ***Course Objectives***

This course will discuss the major components of bioinformatics data (such as DNA and protein sequences and protein structures) and how computer technology is used to understand this data better.

4. ***Instructor*** Tamer Kahveci

- a. Office location CSE 436
- b. Telephone 352-505 1554
- c. E-mail address tamer@cise
- d. Web site <http://www.cise.ufl.edu/~tamer>
- e. Office hours Monday/Wednesday 2:00-2:50 PM

5. ***Teaching Assistant*** TBA

6. ***Meeting Times*** Monday/Wednesday/Friday 8th period (3:00 - 3:50 PM)

7. ***Class/laboratory schedule*** See 4 & 6

8. ***Meeting Location*** CISE Building, E107

9. ***Material and Supply Fees*** None

10. ***Textbooks and Software Required***

None. See class page for recommended reading and books.

11. ***Recommended Reading*** (see 10 above)

12. ***Course Outline***

I am planning to cover the following topics.

- Biological sequences
- Lossless alignments (different DP problems such as global, local alignment, etc.)
- Lossy alignments (BLAST, etc)

- *Substitution matrices, statistics*
- *Multiple alignment*
- *Phylogeny*
- *Protein structures and function (primary, secondary, etc.)*
- *Structure alignment*
- *Structure prediction*
- *Biological networks*

13. **Attendance and Expectations**

- *I encourage class attendance.*
- *Please return your homeworks, project and surveys in time. Late returns will cause 20 % deduction in your grade for that homework (etc) for each late day. Submissions after 5 days from the due date will not be graded.*
- *Please visit only during office hours. If you really need to meet me out of the office hours email me to make an appointment. If I postpone or cancel the office hour, I will post it in the announcements section and (try to) put a note on my office door.*
- *Please avoid any activities that will disturb the flow of the lectures: Silence your cell phones, pagers, etc.*

14. **Grading – methods of evaluation**

Grading will be based on homeworks and quizzes (50 %), project (50 %). EDGE students will return two surveys instead of participation in quizzes. I will reward high quality projects with up to 2.5 % bonus points. 90% or more attendance will be rewarded with up to 2.5 % bonus. You should expect both programming and paper/pen type of homeworks.

15. **Grading Scale** *I will not use curve to determine the letter grades. Roughly the boundaries will be*

- 90+ *A- and above*
- 80+ *B and above*
- 70+ *C and above*
- 60+ *D and above*
- 55- *E*

16. **Make-up Exam Policy** *N/A*

17. **Honesty Policy** – *All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.*

18. ***Accommodation for Students with Disabilities*** – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.
19. ***UF Counseling Services*** – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
 - SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
 - Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
 - Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.
20. ***Software Use*** – All faculty, staff and student 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. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.