

BIOL4540 / 6540: Bioinformatics(Spring2019, CRN23626/ 23627)

1. Course Information

- x Course number and section: BIOL4540A / 6540 A
- x Course name: Bioinformatics
- x Hours of credit: 3
- x Prerequisites or corequisites as listed in university catalogue: Prerequisite: BIOL 1107K, BIOL 1108K, and BIOL 3200 or permission of the instructor (for BIOL 4540) or Admission into the graduate program or permission of the instructor (for BIOL 6540)
- x Classroom location and room number: EC3018, MWF 1:00 pm- 1:50 pm
- x Department, College, University: Department of Biology, College of Arts and Sciences, Valdosta State University

2. Instructor Information

- x Instructor name: Dr. Jonghoon Kang
- x Instructor contact: EC 217, 229-333-7140, jkang@valdosta.edu
- x Instructor office hours: M & T, 2:15 pm - 3:00 pm

3. Course Description

- x Course description as printed in university catalogue: A study of the theoretical principles underlying bioinformatics analysis and a hands-on analysis using publicly available databases and software. Additional topics such as epigenetics or systems biology may be included
- x Required texts, resources, and materials: None

4. Standards, Goals, Objectives, or Outcomes

- x outcomes:  
The departmental educational outcomes (listed in the university catalogue)

7. Schedule of Activities or Assignments including university scheduled final exam time (all schedule is tentative and may be subject to change)

Date	Topic
1/14	Syllabus; Introduction (Philosophy, State, Trends, Opportunity)
1/16	Chromosomes <a href="https://www.ncbi.nlm.nih.gov/books/NBK26834/">https://www.ncbi.nlm.nih.gov/books/NBK26834/</a> <a href="https://www.ncbi.nlm.nih.gov/books/NBK26847/">https://www.ncbi.nlm.nih.gov/books/NBK26847/</a>
1/18	Chromosomes <a href="https://www.ncbi.nlm.nih.gov/books/NBK26834/">https://www.ncbi.nlm.nih.gov/books/NBK26834/</a> <a href="https://www.ncbi.nlm.nih.gov/books/NBK26847/">https://www.ncbi.nlm.nih.gov/books/NBK26847/</a>
1/21	
1/23	DNA Replication <a href="https://www.ncbi.nlm.nih.gov/books/NBK26826/">https://www.ncbi.nlm.nih.gov/books/NBK26826/</a>
1/25	Transcription <a href="https://www.ncbi.nlm.nih.gov/books/NBK26887/">https://www.ncbi.nlm.nih.gov/books/NBK26887/</a>
1/28	Transcription <a href="https://www.ncbi.nlm.nih.gov/books/NBK26887/">https://www.ncbi.nlm.nih.gov/books/NBK26887/</a>
1/30	Translation <a href="https://www.ncbi.nlm.nih.gov/books/NBK26829/">https://www.ncbi.nlm.nih.gov/books/NBK26829/</a>
2/1	Translation <a href="https://www.ncbi.nlm.nih.gov/books/NBK26829/">https://www.ncbi.nlm.nih.gov/books/NBK26829/</a>
2/4	Amino Acid Explorer <a href="https://www.ncbi.nlm.nih.gov/Class/Structure/aa/aa_explorer.cgi">https://www.ncbi.nlm.nih.gov/Class/Structure/aa/aa_explorer.cgi</a> Regression Analysis using Excel (Amino acid abundance)

3/25	Introduction to the BLAST suite and BLASTN
3/27	BLASTP
3/29	BLASTX and TBLASTN
4/1	Bioinformatics Tools for the Laboratory
4/3	Protein Analysis
4/5	PDB
4/8	Multiple Sequence Alignments
4/10	Browsing the Genome
4/12	<i>EXAM III</i>
4/15	Introduction to Epigenetics
4/17	Principles of Epigenetics
4/19	Application of Epigenetics
4/22	Application of Epigenetics
4/24	Application of Epigenetics
4/26	Systems Biology Basics <a href="https://www.ncbi.nlm.nih.gov/pubmed/11404363">https://www.ncbi.nlm.nih.gov/pubmed/11404363</a>
4/29	Systems Biology Basics <a href="https://www.ncbi.nlm.nih.gov/pubmed/11404363">https://www.ncbi.nlm.nih.gov/pubmed/11404363</a>
5/1	Systems Biology Basics <a href="https://www.ncbi.nlm.nih.gov/pubmed/11404363">https://www.ncbi.nlm.nih.gov/pubmed/11404363</a>
5/3	Systems Biology Basics <a href="https://www.ncbi.nlm.nih.gov/pubmed/11404363">https://www.ncbi.nlm.nih.gov/pubmed/11404363</a>
5/6	Systems Biology Basics <a href="https://www.ncbi.nlm.nih.gov/pubmed/11404363">https://www.ncbi.nlm.nih.gov/pubmed/11404363</a>
5/8	<i>Final Exam 12:30 pm 2:30 pm</i>

#### Score Table

Exam I (100)	Exam II (100)	Exam III (100)	Final (200)	Sum (500)	Class (= SUM/5)

#### 8. Classroom Policy

##### Accommodations Statement

Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The access Office is located in Farbar Hall. The phone numbers are ~~229~~ 229-2498(V), 229375-5871. For more information, please visit VSU's Access Office or email: [access@valdosta.edu](mailto:access@valdosta.edu).

##### Title IX Statement

Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws

and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning discrimination policies is the University's Title IX Coordinator: the Director of the Office of Social Equity, titleix@valdosta.edu, 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31698-3225/463.

- Arrive on time. Attendance will be recorded in the first 10 minutes of the class. So, do not be late to class. In the event that a student misses class with an excuse, s/he should email the instructor within 24 hours of the missed class. It is the instructor's prerogative to accept the excuse or not. Students are still responsible for all class content even if they received an excused absence.

- Cell phones are not allowed to be used in class.

- Email: Please email me only from a VSU email account. I am unable to respond to emails from VSU accounts.

- Academic integrity is the responsibility of all VSU faculty and students. Students are responsible for knowing and abiding by the Academic Integrity Policy as set forth in the Student Code of Conduct and the syllabus. All students are expected to do their own work and to uphold a high standard of academic ethics. Cheating (including plagiarism) will not be tolerated. The instructor reserves the right to dismiss you from the course without credit if you are caught cheating. You will be respectful of your instructor and your fellow students at all times, or you will be dismissed from the class and potentially the course.

- No arguments on final grade. You can check any mistake in the calculation of your grade but no any other arguments.

9. Additional Information (at instructor's discretion)

- **Strategies used to support learning:** Students should take advantage of my office hours. Studying as a group (study group) should be a good idea. If cheating is caught in taking exams, all students involved will get a zero point in those assignments.
- *I will teach and you will learn a fascinating topic in biology, bioinformatics, in this course. Therefore, your intellectual enhancement from this course will depend on both of us. Would you have any other ideas?*