

BIOL 7020 A: Special Topics in Cell and Molecular Biology (Fall 2024; CRN: 86765)

1. Course Information

- Course number and section: BIOL 7020 A
- Course name: Special Topics in Cell and Molecular Biology
- Hours of credit: 2
- Pre-requisites or co-requisites as listed in university catalogue: Prerequisite: Acceptance into the graduate program in biology or permission of the instructor.
- Classroom location and room number: BC 2202, R 5:00 pm - 6:50 pm
- Department, College, University: Department of Biology, College of Science and Mathematics, Valdosta State University

2. Instructor Information

- Instructor name: Dr. Jonghoon Kang
- Instructor contact: BC 2217, 229-333-7140, jkang@valdosta.edu
- **Instructor office hours: Monday 1 pm – 5 pm and Tuesday 4 pm – 5 pm or by appointment via VSU email.**

3. Course Description

Course description as printed in university catalogue: Advanced study of cellular and molecular biology requiring reading of the current literature and student presentations. Topics will change each time the course is offered. Course may be taken twice for credit with permission of the instructor.

Textbook: Cell Biology by The Numbers

I recommend students to purchase the book. Its online version is available for free.

<https://book.bionumbers.org/>

Papers: Already posted in BlazeView.

4. Two Objectives

1. Students will learn cell and molecular biology from the perspective of quantitative sciences by reading, comprehending, and presenting the textbook. (The textbook was written by two world-class scientists)
2. Students will have an opportunity to thoroughly analyze recent publications and present their analysis to the class.

5. Assignments and Evaluation Policy

Textbook Presentation	100
Mid-term Exam	100
Paper Presentation	100
Final	100
Total	400

A \geq 90%, B \geq 80%, C \geq 70%, D \geq 60%, F < 60%

Textbook Presentation Rubrics

Limit it to 50 min.

Don't try to present everything.

Focus on three elements: Equations, Figures, and Tables.

You may use PowerPoint or Word.

Be ready for any questions that the class may have.

Paper Presentation Rubrics

Limit it to 50 min.

Don't try to present everything.

Focus on two elements: Figures and Tables

Use PowerPoint.

Be ready for any questions that the class may have.

If you are going to present a target paper, you may include your own analysis of the paper. In that way, you have an opportunity to share your creativity with the class.

Your presentation (either textbook or paper) will be assessed based on your **understanding** of the materials and **clarity** of presentation. In addition, be prepared for any **questions** from your classmates or me.

Send me your presentation materials at least one day before your presentation so that they can be shared with your classmates.

If you want to write a manuscript based on the paper you selected, submit a summary of the paper to me by **September 15 (Sunday)** so that I can work on your summary from September 16.

What to write:

What did they do?

Why did they do?

Why their work is important?

How did they do?

What was the main message of the paper?

Any potential improvements (Probably you need to see me for this section).

Please limit your writing to 200 words. Your summary won't be included in the assessment of your grade, but it will be extremely important for the successful submission of your paper to a journal. Make sure of no plagiarism.

I am going to work on the papers that are promising. Hopefully this will give you an excellent opportunity to publish a peer-reviewed paper. You should know that it won't be easy, but it can be fun.

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

Week	Date	Class
1	8/22	Organizational Meeting
2	8/29	The Path to Biological Numeracy
3	9/5	Ch 1 Size and Geometry
4	9/12	Ch 2 Concentrations and Absolute Numbers
5	9/19	Ch 3 Energies and Forces
6	9/26	Ch 4 Rates and Durations
7	10/3	Ch 5 Information and Errors; Ch 6 A Quantitative Miscellany
8	10/10	Mid-term Exam
9	10/17	Paper Presentation by Instructor
10	10/24	Paper Presentation 1, 2
11	10/31	Paper Presentation 3, 4
12	11/7	Paper Presentation 5, 6
13	11/14	Paper Presentation 7, 8
14	11/21	Paper Presentation 9, 10
15	11/28	Thanksgiving Holidays
16	12/5	Final Exam
