

BIOL 4000 C: Topics in Biology I (RNA Biology)

1. Course Information

- Course number and section: BIOL 4000 C
- Course name: Topics in Biology I (RNA Biology)
- Hours of credit: 3
- Pre-requisites or co-requisites as listed in university catalogue: (BIOL 1107K Minimum Grade: C or BIOL 2XM1 Minimum Grade: C and BIOL 2XML1 Minimum Grade: C) and (BIOL 1108K Minimum Grade: C or BIOL 2XM2 Minimum Grade: C and BIOL 2XML2 Minimum Grade: C)
- Classroom location and room number: BC 1202
- Department, College, University: Department of Biology, College of Arts and Sciences, Valdosta State University

2. Instructor Information

- Instructor name: Dr. Jonghoon Kang
- Instructor contact: BS 2217, 229-333-7140, jkang@valdosta.edu
- Instructor office hours: Mon and Thu 12:45-1:45 PM

3. Course Description

- Prerequisites: BIOL 1107, BIOL 1108, BIOL 3200, CHEM 1211, and CHEM 1212 or permission of the instructor. Introduction to RNA biology focusing on biophysical, biochemical, cellular, and molecular aspects of RNA. Emphasis will be placed on the regulatory role of small RNA molecules.
- Required texts, resources, and materials: *RNA Biology* by Gunter Meister from Wiley (ISBN: 978-3-527-32278-7)

4. Standards, Goals, Objectives, or Outcomes

- outcomes:

#5 and #7 of The General Education Outcomes

(<http://www.valdosta.edu/academic/VSUGeneralEducationOutcomes.shtml>).

The departmental educational outcome

3. Demonstrate an understanding of the cellular basis of life.

- Course objectives or outcomes:
 - Describe biophysical and biochemical aspects of RNA structure and function
 - Explain RNA metabolism mechanistically and relate it to biological phenomena
 - Understand the regulatory and catalytic functions of RNA
 - Recognize biomedical and analytical applications of RNA

5. Assessment or Evaluation Policy

- Explanation of how grades are assigned:
Total score= 400 (4 In-class EXAMs) + 200 (Final) + 20 (Presentation) = 620.
A >= 90%, B >= 80%, C >= 70%, D >= 60%, F < 60%
- Policies for missed assignments, make-up assignments, late assignments, and/or extra credit: If you miss any assignment due to medical or family-related emergency you can have make-up assignments as long as you prove the valid reason of your absence (doctor's notes). **Otherwise no make-up tests!** And you will get a zero point for the missing part.

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

Date	Chapter	Topic	Presentation
1/8	0	A brief outline of classical molecular biology by Crick	
1/10	1	Introduction	
1/15	2	Transcription of Pre-mRNAs	
1/17	2, 3	Capping of the Pre-mRNA 5' End	
1/22	4	3' End Processing of Pre-mRNAs	
1/24	5	Splicing of Eukaryotic Pre-mRNAs	
1/29	6, 7	mRNA Export from the Nucleus to the Cytoplasm	
1/31	7	Translation	
2/5		EXAM 1 (1-6)	
2/7	8, 9	Deadenylation of mRNA, mRNA Decapping	
2/12	10	mRNA Decay Pathways	
2/14	11	mRNA Quality Control	
2/19		EXAM 2 (7-11)	
2/21	12	Ribosomal RNAs and the Biogenesis of Ribosomes	1, 2, 3
2/26	12		4, 5
2/28	13	Transfer RNAs (Midterm)	6, 7
3/5	14	The 7SL RNA and the Signal Recognition Particle	8, 9
3/7	15	Regulation of Transcription: the 7SK Small Nuclear RNA	10, 11
3/12	16	Small Nucleolar RNAs	12, 13
3/14		EXAM 3 (12-16)	
3/19	Spring Break		
3/21	Spring Break		
3/26	17	Spliceosomal Small Nuclear RNAs	14, 15
3/28	18	Small Non-Coding RNAs and the Mechanism of Gene Silencing	16, 17
4/2	18		18, 19
4/4	19	Long Non-Coding RNAs	20, 21
4/9	20	RNA Editing	22, 23
4/11	21	Ribozymes – Catalytic RNA Molecules	24, 25
4/16	22	Riboswitches and RNA Sensors	26, 27
4/18	23	RNomics	28, 29
4/23		EXAM 4 (17-23)	
4/25		Review	
5/3		Final (10:15am-12:15pm)	

7. Classroom Policies

- Attendance and tardiness: Any absence policy should conform to the university policy. University Attendance Policy from the VSU catalogue:
“The University expects that all students shall regularly attend all scheduled class meetings held for instruction or examination. When students are to be absent from class, they should immediately contact the instructor. A student who misses more than 20% of the scheduled classes of a course will be subject to receive a failing grade in the course.”
- Accommodations Statement:
From VSU’s Access Office (<http://www.valdosta.edu/access/facresources.shtml>):
“Students requesting classroom accommodations or modifications due to a documented disability must contact the Access Office for Students with Disabilities located in the Farber Hall. The phone numbers are 245-2498 (V/VP) and 219-1348 (TTY). “
- Academic Integrity: You know that cheating is a bad thing to do. Students caught cheating will receive a grade of F for the test in question and will be reported to the Dean of Students. You are expected to follow VSU’s Academic Integrity Code.
From VSU’s Academic Integrity Code (the full code is available at <http://www.valdosta.edu/academic/AcademicHonestyPoliciesandProcedures.shtml> :
“Academic integrity is the responsibility of all VSU faculty and students. Faculty members should promote academic integrity by including clear instruction on the components of academic integrity and clearly defining the penalties for cheating and plagiarism in their course syllabi. Students are responsible for knowing and abiding by the Academic Integrity Policy as set forth in the Student Code of Conduct and the faculty members’ syllabi. All students are expected to do their own work and to uphold a high standard of academic ethics. “
- Classroom demeanor or conduct: Every student and the instructor should contribute to making the lecture comfortable and enjoyable learning experience. Common sense should be practiced and expected. If not you will be removed from the class.
- Communication: All VSU-related correspondence should be conducted via VSU email addresses for both student and instructor.

8. Additional Information

- Instructional philosophy: I believe reading one book ten times is more effective in learning a subject than reading ten books one time each. This is the case for this course. Learning is a self-motivated process. I will be responsible for teaching the materials but you will be responsible for absorbing them.
- Strategies used to support learning: Students should take advantage of my office hours. Studying as a group (study group) should be a good idea.
- One more thing: Try to make your own summary of the course contents based on the lecture, textbook, and the end of chapter questions and answers.