

BIOL 7020 A: Special Topics in Cell and Molecular Biology (Fall 2013; CRN: 81328)

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, W 5:00 pm - 6:50 pm
- Department, College, University: Department of Biology, College of Arts and Sciences, Valdosta State University

2. Instructor Information

- Instructor name: Dr. Jonghoon Kang
- Instructor contact: BC 2217, 229-333-7140, jkang@valdosta.edu
- Instructor office hours: Mon and Tue 9:00 am – 10:00 am

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.

4. Standards, Goals, Objectives, or Outcomes

- outcomes:

Educational outcomes associated with this course include numbers 1 and 2 as specified by the VSU Biology Department for its Master's program.

Throughout the semester students will acquire knowledge in current cellular and molecular biology by studying the work of Nobel laureates in chemistry or physiology/medicine since the year 2000; the list of potential topics is below.

5. Assignments (explicitly aligned with the goals, objectives, or outcomes)

- Decide the topic and the laureate you will work on; email me your selection by Aug 21.
- Make a powerpoint file: Facts, Biographical, & Background of the field
- Present your **powerpoint file** and **Lecture slide** to the class
- Turn in a term paper
 - ✓ Format: Type, A4, Font size 11, double spacing, about 5 pages. Turn it in as a hard copy.

- ✓ Contents: About the laureate, Background of the field, Summary of the laureate's work, Your thought on future work

6. Assessment or Evaluation Policy

Presentation	30
Term paper	30
Mid-Term Test	20
Final exam	20
Absence from class	-5 (each time)
Total	100

A >=90%, B >= 80%, C >=70%, D >=60%, F < 60%

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

Date	Class
8/14	Organizational meeting
8/21	Kang on Bruce A. Beutler
8/28	Antonio
9/4	Simone
9/11	Josh
9/18	Justin
9/25	Richard
10/2	Joseph
10/9	Mid-Term Test
10/16	Samreen
10/23	David A
10/30	Sean
11/6	Ted
11/13	Kang, Term Paper Due
11/20	Final Exam

List of the topics

The Nobel Prize in Chemistry 2012

Robert J. Lefkowitz and Brian K. Kobilka

"for studies of G-protein-coupled receptors"

The Nobel Prize in Chemistry 2009

Venkatraman Ramakrishnan, Thomas A. Steitz and Ada E. Yonath

"for studies of the structure and function of the ribosome"

The Nobel Prize in Chemistry 2008

Osamu Shimomura, Martin Chalfie and Roger Y. Tsien

"for the discovery and development of the green fluorescent protein, GFP"

The Nobel Prize in Chemistry 2006

Roger D. Kornberg

"for his studies of the molecular basis of eukaryotic transcription"

The Nobel Prize in Chemistry 2004

Aaron Ciechanover, Avram Hershko and Irwin Rose

"for the discovery of ubiquitin-mediated protein degradation"

The Nobel Prize in Chemistry 2003

Peter Agre

"for the discovery of water channels"

Roderick MacKinnon

"for structural and mechanistic studies of ion channels"

The Nobel Prize in Chemistry 2002

John B. Fenn and Koichi Tanaka

"for their development of soft desorption ionisation methods for mass spectrometric analyses of biological macromolecules"

Kurt Wüthrich

"for his development of nuclear magnetic resonance spectroscopy for determining the three-dimensional structure of biological macromolecules in solution"

The Nobel Prize in Physiology or Medicine 2012

Sir John B. Gurdon and Shinya Yamanaka

"for the discovery that mature cells can be reprogrammed to become pluripotent"

The Nobel Prize in Physiology or Medicine 2011

Bruce A. Beutler and Jules A. Hoffmann

"for their discoveries concerning the activation of innate immunity"

Ralph M. Steinman

"for his discovery of the dendritic cell and its role in adaptive immunity"

The Nobel Prize in Physiology or Medicine 2010

Robert G. Edwards

"for the development of in vitro fertilization"

The Nobel Prize in Physiology or Medicine 2009

Elizabeth H. Blackburn, Carol W. Greider and Jack W. Szostak

"for the discovery of how chromosomes are protected by telomeres and the enzyme telomerase"

The Nobel Prize in Physiology or Medicine 2008

Harald zur Hausen

"for his discovery of human papilloma viruses causing cervical cancer"

Françoise Barré-Sinoussi and Luc Montagnier

"for their discovery of human immunodeficiency virus"

The Nobel Prize in Physiology or Medicine 2007

Mario R. Capecchi, Sir Martin J. Evans and Oliver Smithies

"for their discoveries of principles for introducing specific gene modifications in mice by the use of embryonic stem cells"

The Nobel Prize in Physiology or Medicine 2006

Andrew Z. Fire and Craig C. Mello

"for their discovery of RNA interference - gene silencing by double-stranded RNA"

The Nobel Prize in Physiology or Medicine 2005

Barry J. Marshall and J. Robin Warren

"for their discovery of the bacterium *Helicobacter pylori* and its role in gastritis and peptic ulcer disease"

The Nobel Prize in Physiology or Medicine 2004

Richard Axel and Linda B. Buck

"for their discoveries of odorant receptors and the organization of the olfactory system"

The Nobel Prize in Physiology or Medicine 2003

Paul C. Lauterbur and Sir Peter Mansfield

"for their discoveries concerning magnetic resonance imaging"

The Nobel Prize in Physiology or Medicine 2002

Sydney Brenner, H. Robert Horvitz and John E. Sulston

"for their discoveries concerning genetic regulation of organ development and programmed cell death"

The Nobel Prize in Physiology or Medicine 2001

Leland H. Hartwell, Tim Hunt and Sir Paul M. Nurse

"for their discoveries of key regulators of the cell cycle"

The Nobel Prize in Physiology or Medicine 2000

Arvid Carlsson, Paul Greengard and Eric R. Kandel

"for their discoveries concerning signal transduction in the nervous system"