

## BIOL 7900: Graduate Seminar (Spring, 2016; CRN: 21613)

### 1. Course Information

- Course number and section: BIOL 7900 A
- Course name: Graduate Seminar
- Hours of credit: 2
- Pre-requisites or co-requisites as listed in university catalogue: Acceptance into the graduate program in biology.
- Classroom location and room number: BC 1202, R 5:00 pm - 6:50 pm & POWELL HALL, R 4:00 pm - 4:50 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: MW 9:30 am – 11:00 am

### 3. Course Description

- Course description as printed in university catalogue: Discussion and critical analysis of peer-reviewed literature in biology and related sciences. Students must take this course once for credit. This course may be repeated for a maximum of three times for credit.

### 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:

1. To demonstrate competency in factual content and interpretation of the major biological concept areas of cell and molecular biology, genetics, organismal biology, and evolution and ecology.
2. To demonstrate the ability to identify significant biological research questions, develop research protocols, and properly analyze research questions through the use of the scientific method.

- Specific Objectives:

1. To organize your thesis research project.
2. To delve into an emerging field in biology (epigenetics).
3. To practice presentation and critical analysis of research papers.
4. To expand your knowledge.

### 5. Assignments

- Present two times in class (your research and research articles)
  - Research presentation: 20 to 30 min long talk and Q&A
  - Article presentation: 50 min long talk and Q&A
  - Read and comprehend the research paper before coming to class
- Attend all science seminars and ask at least one question in semester

### 6. Assessment or Evaluation Policy

**Science Seminar:** –5 points for each absence from science seminar or class (Excused absences are usually given for medical emergencies and documentation must be provided; the professor determines whether or not an absence is “excused” or not.)

You are required to ask at least one carefully thought question in seminar in semester (5 points).

**Presentation:** 20\*2 = 40 points

Presentation will be evaluated based on three aspects: Format (5 points), Logical consistency (5 points), and Scientific depth (10 points).

**Final Exam:** 55 points (Final exam will be composed based on the materials discussed in class not in seminar except mine)

Total: 100 points; 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  | Seminar   |
|------|--|---|
| 1/14 | Organizational Meeting   |   |
| 1/21 | Student Research Presentation I  |   |
| 1/28 | Student Research Presentation II   | Pecan truffles in Georgia   |
| 2/4  | Student Research Presentation III<br>(Due of picking up your research paper) | TBA   |
| 2/11 | Principles of Epigenetics  | Introduction to Epigenetics   |
| 2/18 | Article Presentation I   | TBA   |
| 2/25 | Article Presentation II  | by Dr. Gil Nelson   |
| 3/3  | Article Presentation III   | Intellectual Property and Undergraduate Research; From Artificial Reefs to Tuberculosis |
| 3/10 | Article Presentation IV  | TBA   |
| 3/17 | <i>Spring Break</i>  | <i>Spring Break</i>   |
| 3/24 | Article Presentation V   | Echoes from a Galaxy's Heart: Reverberation Mapping of Active Galactic Nuclei           |
| 3/31 | Article Presentation VI  | TBA   |
| 4/7  | Article Presentation VII   | TBA   |
| 4/14 | Article Presentation VIII  | TBA   |
| 4/21 | Article Presentation IX  | Corporate Values and Disciplines and the "CJB Way"                                      |
| 4/28 | <b>Final (5 – 7 pm)</b>  |   |

### List of Research Papers

You pick up one paper and study and analyze it carefully and present your understanding of the paper in class in a powerpoint format. Copy and paste the doi number into the search window on the PubMed to get the paper.

1. Nutrients. 2015 Mar 11;7(3):1787-97. doi: 10.3390/nu7031787.

What do studies of insect polyphenisms tell us about nutritionally-triggered epigenomic changes and their consequences?

2. Nutrients. 2015 Jan 30;7(2):922-47. doi: 10.3390/nu7020922.

The interaction between epigenetics, nutrition and the development of cancer.

3. *Nutrients*. 2015 Jan 14;7(1):517-51. doi: 10.3390/nu7010517.  
Nutritionally-induced catch-up growth.
4. *J Exp Biol*. 2015 Jan 1;218(Pt 1):114-22. doi: 10.1242/jeb.110809.  
The expanding epigenetic landscape of non-model organisms.
5. *Circ Cardiovasc Genet*. 2014 Oct;7(5):701-10. doi: 10.1161/CIRCGENETICS.113.000129.  
Cardiovascular transcriptomics and epigenomics using next-generation sequencing: challenges, progress, and opportunities.
6. *Curr Opin Genet Dev*. 2014 Oct;28:43-9. doi: 10.1016/j.gde.2014.09.008. Epub 2014 Oct 14.  
Cancer-like epigenetic derangements of human pluripotent stem cells and their impact on applications in regeneration and repair.
7. *Trends Immunol*. 2014 Nov;35(11):518-25. doi: 10.1016/j.it.2014.09.007. Epub 2014 Oct 22.  
Epigenomic regulation of host-microbiota interactions.
8. *Dialogues Clin Neurosci*. 2014 Sep;16(3):405-17.  
Epigenetic mechanisms in schizophrenia.
9. *Nat Neurosci*. 2014 Nov;17(11):1476-90. doi: 10.1038/nn.3816. Epub 2014 Oct 28.  
Analytical tools and current challenges in the modern era of neuroepigenomics.
10. *Immunol Rev*. 2014 Nov;262(1):96-112. doi: 10.1111/imr.12213.  
Epigenomics of macrophages.
11. *Int J Mol Sci*. 2014 Sep 11;15(9):16043-56. doi: 10.3390/ijms150916043.  
Environmental factors, toxicants and systemic lupus erythematosus.
12. *Cell Metab*. 2014 Aug 5;20(2):208-13. doi: 10.1016/j.cmet.2014.07.014.  
Nutrient regulation of signaling, transcription, and cell physiology by O-GlcNAcylation.
13. *Proteomics*. 2014 Oct;14(19):2115-26. doi: 10.1002/pmic.201400131. Epub 2014 Aug 28.  
How the proteome packages the genome for cardiovascular development.
14. *Int Rev Neurobiol*. 2014;115:75-116. doi: 10.1016/B978-0-12-801311-3.00003-2.  
The epigenetic landscape of alcoholism.
15. *Trends Genet*. 2014 Jun;30(6):230-6. doi: 10.1016/j.tig.2014.04.004. Epub 2014 Apr 26.  
Mechanisms of epigenetic memory.
16. *Front Psychiatry*. 2014 Apr 23;5:40. doi: 10.3389/fpsy.2014.00040.  
Meditation as a therapeutic intervention for adults at risk for Alzheimer's disease - potential benefits and underlying mechanisms.
17. *Psychoneuroendocrinology*. 2014 Feb;40:96-107. doi: 10.1016/j.psyneuen.2013.11.004.  
Rapid changes in histone deacetylases and inflammatory gene expression in expert meditators.