

**Syllabus: Biology 4900B (CRN 21397) Senior Seminar Spring 2012**

**Instructor: Dr. Archana Bhasin**

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**Office: 2093 Bailey Science Center**

**Class: Thurs 2:00 - 3:50pm Bailey Science Center Rm. 1024**

**Thurs 4:00 - 5:00 pm Student Union Theatre, unless otherwise indicated**

**Office hours: Thurs 12:50-1:50pm weekly or by appointment**

**Thurs 2-3:50pm when class does not meet (Jan. 26, Feb. 9, Feb. 16)**

**Course Objective (from the Undergraduate Catalog):** “The capstone course in biology. This course assesses students’ abilities to research independently topics in biology, assimilate the information, and disseminate the information in an organized and understandable fashion in both oral and written forms. Besides demonstrating comprehension of their topic and competence in communication skill, students take the ETS Major Field test in biology and complete the Senior Exit Questionnaire for successful course completion.” Course objectives support Department of Biology Educational Outcome #1 and VSU General Educational Outcomes #4 and #7.

### **Course requirements**

in order to pass this course with a Satisfactory (S), you will need to complete the following:

- **a minimum score of 140 on the Major Fields Test;** the first exam will be free, but you will have to pay a fee for further testing; you will lose 40 points for a score below 140
- **a 30 minute PowerPoint presentation** that is understandable to your classmates, is in your own words and that demonstrates your understanding of the material
- **a review paper, minimum of 10 pages (not including references and figures, double-spaced, 12 pt Times New Roman, 1 inch margins on all sides, printed on only one side)** based on one of the articles that I provided that is well-written, well-referenced, understandable to your classmates, is in your own words and that demonstrates your understanding of the material
- you must have a **minimum of 8 appropriate primary references (not including the main article that I provided) and 2 appropriate secondary references**
- **attendance at all scheduled class sessions and student presentations is mandatory and you must attend and evaluate 10 Science Seminar sessions;** you will lose ten points for each absence

### **Plagiarism**

**Plagiarism will absolutely not be tolerated! Plagiarism, whether intentional or not, from your sources will result in failure of the course.** You must be diligent in citing all of your reference and you must avoid taking someone else’s words, even if you quote them. A paper full of quotes does not demonstrate understanding and will result in failure of the course. **Paraphrasing does not mean changing a word or two.** The best way to ensure that you do not plagiarize is to read the

- use Inter Library Loan; do not limit your articles to free ones or you will have a very incomplete story
- the paper should be spell-checked (don't let spell-check auto-correct scientific terms), grammar-checked and very well-edited by yourself and others
- references should include authors (only use *et al.* if there are more than five authors), title, year published, journal, volume, page numbers

### **Paper Submission**

**Papers due on Thursday, March 8 by 5pm. You must submit your paper in a folder along with all of your article references.** For references that are accessible for free online, submit the first page of the reference. For articles that were received through InterLibrary loan, submit the entire article. For book chapters, submit the first page of the chapter. Your paper must be stapled, and articles must be stapled individually. Please put your name on the folder, your paper and each article.

### **Senior Seminar class schedule**

Thurs 1/12/11 - organizational meeting

Thurs 1/19/11 - select articles

Thurs 1/26/11 - no meeting

Thurs 2/2/11 - go to the Testing Office in Powell Hall to take the Major Fields Test, take your student I.D. with you

Thurs 2/9/11 - no meeting

Thurs 2/16/11 - no meeting

### Thurs 2/23/11

Proc Natl Acad Sci U S A. 2011 Sep 20;108(38):15822-7. **The bacterial actin MreB rotates, and rotation depends on cell-wall assembly.** van Teeffelen S, Wang S, Furchtgott L, Huang KC, Wingreen NS, Shaevitz JW, Gitai Z.

Rainer Kalscheuer, Brian Weinrick, Usha Veeraraghavan, Gurdyal S. Besra, and William R. Jacobs, Jr. **Trehalose-recycling ABC transporter LpqY-SugA-SugB-SugC is essential for virulence of Mycobacterium tuberculosis** PNAS 2010 107 (50) 21761-21766

Patricia Bordes, Anne-Marie Cirinesi, Roy Ummels, Ambre Sala, Samer Sakr, Wilbert Bitter, and Pierre Genevaux **SecB-like chaperone controls a toxin antitoxin stress-responsis11761**

Michael J. Trimble and Linda L. McCarter **Bis- -cyclic dimeric GMP-linked quorum sensing controls swarming in *Vibrio parahaemolyticus*** PNAS 2011 108 (44) 18079-18084

Thurs 3/22/11

Parameth Thiennimitr, Sebastian E. Winter, Maria G. Winter, Mariana N. Xavier, Vladimir Tolstikov, Douglas L. Huseby, Torsten Sterzenbach, Renée M. Tsolis, John R. Roth, and Andreas J. Bäumlner **Intestinal inflammation allows *Salmonella* to use ethanolamine to compete with the microbiota** PNAS 2011 108 (42) 17480-17485

Mitchell T. Butler, Qingfeng Wang, and Rasika M. Harshey **Cell density and mobility protect swarming bacteria against antibiotics** PNAS 2010 107 (8) 3776-3781

Thomas W. Cullen and M. Stephen Trent **A link between the assembly of flagella and lipooligosaccharide of the Gram-negative bacterium *Campylobacter jejuni*** PNAS 2010 107 (11)

Proc Natl Acad Sci U S A. 2011 Sep 27;108(39):16410-5. **Avenolide, a *Streptomyces* hormone controlling antibiotic production in *Streptomyces avermitilis***. Kitani S, Miyamoto KT, Takamatsu S, Herawati E, Iguchi H, Nishitomi K, Uchida M, Nagamitsu T, Omura S, Ikeda H, Nihira T.

Thurs 3/29/11

Patrick R. Shea, Stephen B. Beres, Anthony R. Flores, Amy L. Ewbank, Javier H. Gonzalez-Lugo, Alexandro J. Martagon-Rosado, Juan C. Martinez-Gutierrez, Hina A. Rehman, Monica Serrano-Gonzalez, Nahuel Fittipaldi, Stephen D. Ayers, Paul Webb, Barbara M. Willey, Donald E. Low, and James M. Musser **Distinct signatures of diversifying selection revealed by genome analysis of respiratory tract and invasive bacterial populations** PNAS 2011 108 (12) 5039-5044

Randall J. Olsen, Izabela Sitkiewicz, Ara A. Ayeras, Vedia E. Gonulal, Concepcion Cantu, Stephen B. Beres, Nicole M. Green, Benfang Lei, Tammy Humbird, Jamieson Greaver, Ellen Chang, Willie P. Ragasa, Charles A. Montgomery, Joiner Cartwright, Jr, Allison McGeer, Donald E. Low, Adeline R. Whitney, Philip T. Cagle, Terry L. Blasdel, Frank R. DeLeo, and James M. Musser **Decreased necrotizing fasciitis capacity caused by a single nucleotide mutation that alters a multiple gene virulence axis** PNAS 2010 107 (2) 888-893

Mor Meyerovich, Gideon Mamou, and Sigal Ben-Yehuda **Visualizing high error levels during gene expression in living bacterial cells** PNAS 2010 107 (25) 11543-11548

Thurs 4/5/11

Keiko Sato, Mariko Naito, Hideharu Yukitake, Hideki Hirakawa, Mikio Shoji, Mark J. McBride, Ryan G. Rhodes, and Koji Nakayama



