

SYLLABUS
Bio-105, BIOLOGICAL CONCEPTS: UNITY
SECTION: E09C, Fall 2011

Dr. Toivo Kallas

Lecture hours: Tu, Th 1:20 – 2:50, Clow 102

Office: Halsey Science 245, phone: **424-7084**, e-mail: kallas@uwosh.edu,
web: www.uwosh.edu/facstaff/kallas

Office Hours: TuTh 3:00 – 4:30, W 11:30 – 12:30
Other times by appointment. Anytime by phone or e-mail.
I am generally on campus from 10 AM to 6 PM.

Course Objectives and Statement of the Liberal Arts

Bio-105 is an introductory course in biology intended for both majors and non-majors. The 21st century is the 'century of biology.' Incredible advances have been made in understanding fundamental features of life and mechanisms by which living organisms sense and respond to each other and their environments. We humans as living creatures, face remarkable opportunities for advancement as well as daunting environmental and societal challenges, many of which involve biology. Thus a basic understanding of biology is essential for members of society to make informed decisions about environmental, medical, and ethical issues that greatly influence the modern world. A broadly-based, multidisciplinary appreciation of nature, society, and art, and the ability to discuss important issues, verbally and in writing, is the hallmark of a liberal arts education. In this course we will explore the fundamental, unifying, molecular and cellular features of life. We will also emphasize, as much as possible in a large, 'pit' class, the discussion of scientific concepts.

Lecture Information:

Lecture Text: Reece, Taylor, Simon, Dickey (2011) **Biology: Concepts and Connections**, 7th edition, Pearson-Benjamin Cummings, custom version for UW Oshkosh. **Your book is valuableUSE IT!** Read assignments before coming to class then re-read the assignments after lecture. Study the figures closely....**THEY ARE IMPORTANT.** Note the "How to use this book" section (p iv – viii) and interactive CD.

Student Performance System (CPS) response 'clickers': Everyone is encouraged to purchase a student response pad (clicker) from the bookstore and register this to obtain access to the class. Instructions are provided on the class D2L site under, "CPS student instructions, Setup Guide." Note that you will not need to pay the activation fee – this will be covered by Student Tech Fee funds – Activation cards will be provided in class. The clickers are optional but I will use them for extra credit quizzes and to get feedback from the class. They will allow you to respond to questions that I ask which will include sample questions from exams. Studies show that students are more alert and do better on exams when clickers are used! Let's give them a try!

Podcasting: I will podcast my lectures – however, if you want to do well in this class, these will not substitute for regular attendance of lectures!

Lecture Exams: There will be four exams consisting of multiple choice and possible short answer/essay questions. The fourth exam at the end the semester will be a comprehensive exam. If you miss an exam, you will receive a score of zero unless you take the make-up exam at the end of the semester.

Special note to athletes or others who will miss an exam for academic reasons: you **MUST** have a letter from your coach/advisor and you **MUST** notify me at least one week before the exam to make special arrangements.

Review sessions: Review sessions will be held in the evening a few days before each lecture exam. Times and places will be announced.

Attendance: It is your responsibility to attend lectures and labs. The main reason for **poor grades** in this class is **poor attendance!** Good attendance and **good note-taking skills** will increase your ability to do well. I do not publish lecture notes. However, PowerPoint lecture presentations and other materials will be available on the class **D2L** site.

Instructions for accessing the D2L (Desire2Learn) site: Go to the UW Oshkosh home page > 'Titan Services' > 'D2L.' This will take you to the **D2L** login page. To login, use your UW Oshkosh e-mail username and password. In **D2L**, go to the Biology Concepts, Bio-105 E09C course to access course materials, review questions, grades, and messages.

Supplemental Instruction (SI): Maria Vitale (vitalm41@uwosh.edu) is the student, supplemental instruction leader for this class. More information is provided at the end of the syllabus. Maria is here to help you learn the material in this class!

Cell Phones: All cell phones must be turned off during lecture and laboratory times. Texting, twittering, tweeting, bleeping, etc. will not be tolerated. If you must leave your phone on in case of an EMERGENCY (i.e. life or death situation), set it to vibrate. Cell phones or electronic devices operating during class sessions or lecture exams will be confiscated and broken into small pieces!

Laboratory Information:

Laboratory Manual: Bio-105 Concepts in Biology: Unity, Laboratory Manual (Fall 2011 edition). Bring it (along with your lecture text) to every laboratory meeting. Other materials needed for lab are listed below.

Laboratory Exams: There will be two lab exams, consisting of multiple choice and possible short answer/essay questions. These will be given during the lecture period in the lecture hall. If you miss an exam, you will receive a score of zero unless you take the make-up exam at the end of the semester.

Laboratory Attendance: You are required to attend the lab section in which you are enrolled. ***Missed labs cannot be made up easily.*** If you must miss your regularly scheduled lab you may try to attend another lab. It is YOUR responsibility to contact the instructor of that lab in advance and obtain permission to participate in her/his lab section. Lab instructors are under no obligation to allow you into their lab. Lab instructors and sections can be found on Titan Web. ***Note that it is only possible to make up a lab during the same week of your scheduled lab section!***

Grading:

Lecture Grades: Your lecture grade will be based on scores from the three unit lecture exams (150 points each or 45% of the overall course grade) and one comprehensive final lecture exam (200 points or 20% of the course grade).

Laboratory Grades: The two laboratory exams are worth 125 points each or 25% of your final grade. An additional 10% of your final grade (100 points) will be assigned for lab reports and lab quizzes to be determined by the laboratory instructor.

Final Grade: 65% (650 points) will be based on lecture scores and 35% (350 points) on laboratory scores for a total of 1000 possible points.

Extra Credit Quizzes: will be given periodically during the lecture period. Each is worth 1 point for a correct answer. Quiz scores up to a total of 40 points are added directly to your final point total (i.e. up to 4% of your final grade). Exams may also include some extra credit questions.

Make-up Exam: This will be a comprehensive exam! Only **ONE** exam will be given at the end of the semester. Because this exam will test material from lectures and labs from all parts of the semester, it will cover a great deal of information. Be prepared for this and try to avoid it!

Grading Scale: 93-100% = A, 90-92 = A⁻, 87-89 = B⁺, 83-86 = B, 80-82 = B⁻, 77-79 = C⁺, 73-76 = C, 70-72 = C⁻, 67-69 = D⁺, 63-66 = D, 60-62 = D⁻, below 60% = F. I reserve the right to lower the scale slightly if class performance warrants such a change.

Statement on Academic Dishonesty:

Students are referred to the University of Wisconsin Oshkosh Student Discipline Code as detailed in specific provisions of Chapter 14 of the State of Wisconsin Administrative Code. Any student(s) found in violation of any aspect of the above Code (as defined in sections UWS 14.02 and 14.03) will receive a sanction as detailed in UWS 14.05 and 14.06. Examples of violations include: looking at another student's exam or answer sheet and copying the answers during an exam, talking or whispering to another student during an exam, and receiving text messages during an exam on an electronic device. Sanctions range from a grade of zero for the assignment in question to an oral reprimand to expulsion from the University of Wisconsin Oshkosh. Students have the right to request a hearing and to appeal sanctions (as defined in UWS 14.08-14.10).

Statement on Students with Disabilities:

Students with disabilities are welcome in this course. Please contact your lecture and lab instructors in the first week of class so that we may arrange all possible accommodation.

Lecture and Laboratory Schedule for Fall 2010:

Date	Lecture Topics	Text Reading	Lab Topics (beginning:)
Sep. 8	What is science? What is philosophy? What is the Scientific Method? Are scientists the only ones who follow the scientific method...or do we all use it? Why study biology? What is life?	Chapter 1	No lab
Sep. 13-15	Biomolecules: To understand how life exists and functions and how all life forms are similar, we must understand a bit of chemistry....what molecules are used in living systems, what are their properties, how is each crucial to the existence of life?	2-3	Sep. 12: Exercise 1, Scientific Method
Sep. 20-22	Cellular basis of life: How are the simplest forms of life different from each other? How are they the same? What are the components of individual cells and how have some of these been specialized so that some cells can send messages (neurons), some can store energy (liver and fat cells) and some can lift weights (muscles)? What caused multicellular organisms to evolve? Is their competition and cooperation between cells in multicellular cellular organisms?	4	Sep. 19: Exercise 2, Impact of Drugs on <i>Daphnia</i> Metabolism
Sep. 27-29	Cell membranes: How are molecules and their forces harnessed to allow life to exist? How do cells control what enters and leaves? What molecules control the metabolism and behavior of cells?	5	Sep. 26: Exercise 3, Mystical Molecules
Sept. 29 - Oct. 6	Cells and electricity: How do cells generate electricity; what signals muscles to contract?...practical aspects of diffusion. How do nerve cells transmit signals?	5 & suppl. material	Oct. 3: Exercise 4, Proteins & Enzymes
Oct. 4	5-7 PM Review/study session (location to be announced)		
Oct. 6	First Lecture Exam!	1-5	
Oct. 11-13	Enzymes, Energy, Respiration: What are enzymes? How do they perform biochemical reactions? How do our cells get energy from the food we eat? What makes oxygen such an important molecule? What is meant by RESPIRATION?	6	Oct 10: Exercise 5, Osmosis and Diffusion

Oct. 18-20	Energy and Photosynthesis: How is energy from the sun harnessed? How does life on earth depends on the activity of cyanobacteria and algae! How plants produce oxygen and make sugars. Why oxygen can be extremely dangerous!	7	Oct. 17: Exercise 6 , Respiration
Oct. 25-27	Replication vs. Sex: The difference between replication and sex! What controls cell division? What causes cancer? The difference between mitosis and meiosis.	8	Oct. 24: Exercise 7 Photosynthesis Exercise 8.1 Mendelian Genetics
Nov. 1-3	Inheritance: How are traits inherited? How can we calculate and predict patterns of inheritance? Mendel, Punnett squares, and genetic variation.	9	Oct. 29: Exercise 8.2 Genetics Exercise 9.1 Genetic Engineering
Nov. 1	5-7 PM Review/study session (location to be announced)		
Nov. 3	Second Lecture Exam	6-8	
Nov. 8-10	Molecular biology of the gene: What are genes and how are they replicated?	10	Nov. 7: Exercise 8.3 Genetics Exercise 9.2 Gen. Engineering
Nov. 10	First Lab Exam (Labs 1-7)		

Nov. 15-17	Molecular biology of genes & gene products: What do genes actually encode? How is the DNA code of a gene converted to something useful by the cell? The connection between genes and enzymes.	10	Nov. 14: Exercise 8.4 Genetics Exercise 9.3 Gen. Engineering
Nov. 22	Genes, signals, & development: How do genes control cell behavior? How do they control development?	11	
Nov. 23-27	Thanksgiving Break! (<i>Don't forget everything you've learned!</i>)		
Nov. 29- Dec. 1	Genes, signals, development, & biotechnology: How do genes control development and cellular processes? How can scientists investigate and manipulate genes to genetically engineer bacteria, animals and plants?	11-12	Nov. 28: Exercise 8.5 Genetics Exercise 9.4 Gen. Engineering
Dec. 6-8	Selection and evolution: Darwin's legacy. "Survival of the fittest"...how do populations change? What makes us think that evolution took place? Wrap-up, SOS.	13-14 and parts of 15-16	Dec. 5: Exercise 10 Evolution
Dec. 6	5-7 PM Review/study session (location to be announced)		
Dec. 8	Third Lecture Exam	10-16	
Dec. 9 - 16	Make-up Exam (time and place to be scheduled)		
Dec. 13	Second Lab Exam (Labs 8-10 and part of Lab 7)		
Dec. 15	Comprehensive Final Exam		
Dec. 16	End of the semester – Happy Holidays!		

Further laboratory information

Laboratory attendance: You are required to attend the lab section in which you are enrolled and the corresponding lecture section. Dr. Kallas is the lecture instructor for E01-E07.

The names of the other Bio-105 lecture instructors can be found on Titan Web.

YOU MUST ATTEND THE LECTURES THAT CORRESPOND WITH YOUR LABORATORY SECTION, (e.g. if you enroll for lab sections E01L-E07L, you must attend Dr. Kallas's lectures.... not attend Drs. Holton's, Lammer's, Kostman's, or Beard's lectures.) All students enrolled in the "A" section laboratory must attend Dr. Kallas's lectures.

Missed Labs Cannot Be Made Up Easily. If you must miss your regularly scheduled lab you can try to attend another lab. It is YOUR responsibility to contact the instructor of that lab and confirm that you may participate in her/his lab section. Lab instructors are under no obligation to allow you into their lab. Below is a list of all of the lab sections and the instructors. IT IS ONLY POSSIBLE TO MAKE UP A LAB DURING THE SAME WEEK OF YOUR SCHEDULED LAB SECTION!

Materials You Will Need In The Lab:

3-ring binder or folder for your lab manual
15cm ruler
calculator
#2 pencils and erasers
note book paper

LABORATORY INSTRUCTORS AND SECTIONS, Fall 2011:

The names of the Bio-105 lab instructors can be found on Titan Web.

Supplemental Instruction (SI) for Biology 105
Maria Vitale, Student SI Leader
E-mail: vitalm41@uwosh.edu
Frequently Asked Questions

What is SI?

Supplemental Instruction (SI) is a series of weekly review sessions for students taking historically difficult courses. SI is provided for all students who want to improve their understanding of course material and improve their grades.

Attendance at SI sessions is voluntary. For you the student, it's a chance to get together with people in your class to compare notes, to discuss important concepts, to develop strategies for studying the subject, and to test yourselves before your professor does. At each session you will be guided through this material by your SI leader, a competent student who has previously taken the course.

What is an SI leader?

Have you ever wished you could do something over, knowing what you know now? SI leaders are students themselves and are prepared to share with you what they have learned over the years about how to study. They know the course content and are anxious to help guide you through it. They'll be in class with you every day, hearing what you hear and reading what you read. What they won't do is lecture; their job is to help you think about the lectures you hear and the books you read, and then put it altogether during the SI review sessions. SI can help you learn course material more efficiently.

When do SI review sessions start?

On the first day of class you will fill out a short survey to let the SI leader know your class schedule. Each SI leader will set up two or three review sessions each week at times that are best for the majority of students taking the class. You can attend one, two, or all three (the choice is yours) and each one will be different because you'll have new material to discuss. SI review sessions are informal. Bring your notes; bring your textbook; bring your questions.

What's in it for me?

If you attend SI sessions regularly, chances are you'll earn a better grade. You'll have developed a better understanding of course content as well as more effective ways of studying. This will help you in other classes also.