# BIOLOGY 101

## LECTURE INFORMATION FOR FALL 2013

### TR 10:30 – NOON • SC 118

### DR. ROGER CHRISTIANSON

| DATE | TOPIC | READING | ASMTS | LAB |
|---|---|---|---|---|
| T 01 Oct | Introduction, Nature of Science and Life | Ch 1 | | ATOMS AND MOLECULES |
| R 03 Oct | Organization of Non-living Matter into Living Matter | Ch 2 | | |
| **F 04 Oct** | *****LAST DAY TO ADD A COURSE, CHANGE SECTIONS OR REGISTER WITHOUT INSTRUCTOR APPROVAL***** | | #1 – F 1:30 p.m. | |
| T 08 Oct | Chemical Bonding; Water | Chs 2, 3 | | WATER |
| R 10 Oct | Water, Carbohydrates and Proteins | Ch. 3 | #2 – F 1:30 p.m. | |
| T 15 Oct | Proteins, Nucleic Acids, and Lipids | Ch. 3 | | STRUCTURE OF CELLS |
| R 17 Oct | Studying Cells and the Cell Membrane | Chs 4, 5 | none | |
| | **✱QUIZ #1 Available 5:00 p.m. R through 5:00 p.m. F (through water and inc labs 1 & 2)** | | | |
| T 22 Oct | Cell Membrane, Cytoplasm and Organelles | Chs 5, 4 | | OSMOSIS |
| R 24 Oct | Metabolic Activity and Enzymes | Ch 6 | CP 1 – R 10:30 a.m. | |
| **F 25 Oct** | *****LAST DAY TO DROP COURSES WITHOUT WP OR WF***** | | #3 – F 1:30 p.m. | |
| T 29 Oct | Enzymes and Cellular Energy | Ch 6 | | ENZYMES I |
| R 31 Oct | Cellular Energy, ATP, and Glycolysis | Ch 8 | none | |
| | **✱QUIZ #2 Available 5:00 p.m. R through 5:00 p.m. F (molecules through cell structure, inc lab 3)** | | | |
| T 05 Nov | Cellular Respiration | Ch 8 | | ENZYMES II |
| R 07 Nov | Anaerobic Fermentation and Photosynthesis | Chs 8, 7 | #4 – F 1:30 p.m. | |
| T 12 Nov | The Nucleus and the Nature of Nuclear Material | Ch 11 | | DNA |
| R 14 Nov | DNA | | | |
| | **✱QUIZ #3 Available 5:00 p.m. R through 5:00 p.m. F (metabolic activity through photosynthesis, inc labs 4 & 5)** | | none | |
| **F 15 Nov** | *****LAST DAY TO CHANGE GRADING OPTION***** | | | |
| T 19 Nov | RNA, the Genetic Code, and Making Proteins | Ch 11 | CP 2 – R 10:30 a.m. | RNA, PROTEINS AND MUTATIONS |
| R 21 Nov | Mutations | Ch 12 | #5 – F 1:30 p.m. | |
| T 26 Nov | DNA Technology | Chs 11, 12, 13 | | THANKSGIVING –NO LABS MEET THIS WEEK |
| | **✱QUIZ #4 Available 5:00 p.m. T through 5:00 p.m. W (nucleus through making RNA and inc lab 7)** | | none | |
| R 28 Nov | THANKSGIVING – No Classes Meet!!! | | | |
| **F 29 Nov** | *****LAST DAY TO WITHDRAW FROM COURSES***** | | | |
| T 03 Dec | Chromosomes, the Cell Cycle, and Mitotic Cell Divisions | Ch 9 (pp 145-148; 149-159) | | MITOTIC CELL DIVISIONS |
| R 05 Dec | Mitotic Cell Divisions, Normal and Abnormal | | #6 – F 1:30 p.m. | |

All **reading assignments** are in Audesirk, Audesirk and Byers, Biology: Life on Earth WITH PHYSIOLOGY, 9th ed (2011).
All **laboratory assignments** are in the General Biology: Cells Laboratory Manual, 2013
The **final exam** is available on-line from **5:00 p.m. on W, 11 Dec through 5:00 p.m. on R, 12 Dec.**

# Biology 101 Information

## DR. ROGER CHRISTIANSON
## TR 10:30 A.M. – NOON • SC 118
## FALL 2013

| | |
|---|---|
| **Office:** | **Sc 163** |
| **Office Hours:** | **M 9:30 am; Tu 8:30 am; W 3:30 pm; R 12:30 pm** |
| **Phone Numbers:** | **552-6747 (office)**<br>**488-0223 (home—before 9 p.m.)**<br>**552-6415 (fax—be sure to put my name in an obvious place on first page!)** |
| **E-mail:** | **rchristi@sou.edu** |
| **Dr. Christianson's Personal Web Page:** | **click link on www.sou.edu/biology /faculty/christianson.html** |
| **Bi 101 Home Page:** | **webpages.sou.edu/~rchristi/courses/genbi/bi101.html** |
| **Course Information Index:** | **webpages.sou.edu/~rchristi/courses/genbi/rc/101LecMatIndex.html**<br>(syllabus, lecture schedule, lecture assignments, review index) |
| **Lecture Reviews Index:** | **webpages.sou.edu/~rchristi/courses/genbi/rc/101revue.html**<br>(links to lecture review sheets, audio files of lectures, videos and other material) |
| **Grading:** | **600 points from lecture, as follows:**<br>4 quizzes @ 50 points each = 200 points<br>1 final exam @ 200 points<br>exams are multiple choice and matching; questions from lab exercises and home-work assignments may be included on each exam.<br>In- and out-of-lecture assignments = 100 points<br>Creative assignment = 100 points<br><br>**200 points from lab, as explained by lab instructor.**<br><br>**Grade in class:**<br>A = 90% or better of top score in class<br>B+, B, B- = 87%, 83%, 80% respectively of top score in class<br>C+, C, C- = 75.5%; 69.5%, 65% respectively of top score in class<br>D+, D, D- = 60.5%, 54.5%, 50% respectively of top score in class<br>F = less than 50% of top score in class<br><br>Letter grade and pass/no pass options available. |
| **Texts:** | **Audesirk, Audesirk and Byers, Biology: Life on Earth (with physiology), 9th ed (2011).**<br>**Christianson, Biology 101 Lecture Notes, packet #23.**<br>**Christianson, Biology 101 Laboratory Manual (2013).** |

# COURSE POLICIES
## FOR
# DR. CHRISTIANSON'S BI 101 LECTURE

**Homework assignments**: Homework assignments are posted as PDF files on Moodle. It is your responsibility to check often for new assignments and to have them turned in on time. Late assignments turned in after the bulk have been graded, returned, and the key posted *will not be graded.*

When e-mailing assignments, be sure to keep a copy in a "sent" folder or address a copy to yourself and archive it! That way, if there is a problem with the e-mail you can forward to me this copy, which should be automatically date and time-stamped, as proof that it was turned in on time. In these circumstances, and assuming that the assignment was turned in on time, the assignment will be graded even if it's late.

Unless otherwise indicated in the instructions for an assignment, you are to work on your own. Copying answers or allowing someone to copy from you is cheating and will be handled according to SOU policies. Links to various sections of the Code of Student Conduct can be found on this web page: **http://arcweb.sos.state.or.us/pages/rules/oars_500/oar_573/573_076.html**. Please pay special attention to Prohibited Conduct, Section 573-076-0130 of the Code of Conduct.

**In-class assignments**: Most in-class assignments will require that you discuss something with other classmates in a small group and turn in written answers. Small groups consist of 3 – 5 students. Fewer than three people and more than five people in a group will result in no credit being given for the assignment. In order to receive credit for these assignments, each member of the group must inscribe a LEGIBLE signature on the paper turned in. If you find it difficult to write a legible signature, you may print your name next to your signature. If I can't read your name, you will not receive credit for the assignment!

**Writing:** I expect university students to write in complete sentences and construct coherent paragraphs. I expect you to know the difference in usage between words such as there, they're and their; to, two, and too; its and it's; and your and you're, and to use them correctly! When formulating an answer to a question, assume that the reader is an intelligent but uninformed individual. Make sure your answers contain all of the information needed for this individual to understand the answers *as they relate to the questions*. Be aware that I read literally what you write. I don't try to interpret and find meaning when confronted with poor or confusing grammar and spelling.

Be sure to supply complete citations for any material quoted. A complete citation for a book or journal (magazine) includes name of author(s), name of book (or journal or magazine), publisher (if a book, and includes city), volume and number (if a journal or magazine), edition (if a book), date of publication and page number(s). A complete citation for the Internet is the *complete* URL that takes me *directly* to the page on which the referenced material is found and includes the date on which the reference was viewed.

**Respect others by being quiet once lecture begins!** Sc 118 is a large lecture hall and it will be filled almost to its maximum. The acoustics in it are good, but side chatter, no matter how quiet you think you are being, makes it hard for others to hear the lecture. If you must talk, please take it outside the lecture hall and come back in once you've completed your conversation. Incessant talkers will be asked to leave the lecture.

**Students for whom English is a second language:** Translation dictionaries are not allowed on exams. If this poses a significant problem for you, please come by my office well in advance of exams to discuss options.

**Reading assignments**: On the lecture schedule you will find chapters in the text identified for each lecture. You should read the entire chapters and then concentrate on the sections containing material presented in lecture. Additional material not found in the text may be presented in lecture.

**Students with disabilities**: "If you are in need of support because of a documented disability (whether it be learning, mobility, psychiatric, health-related, or sensory) you may be eligible for academic or other accommodations through Disability Resources. Call Academic Support Programs at 541-552-6213 to schedule an intake Disability Resources. The Academic Support Programs office is located in the Stevenson Union, lower level.

"See the Disability Resources webpage at www.SOU.EDU/ACCESS/DSS for more information."

http://www.sou.edu/access/dss/facstaffhome.shtml – 27 August 2013

## Bi 101 Class Assignment #1

Review the Biology 101 and linked web pages in order to answer the following six questions. E-mail your answers to Dr. Christianson no later than **1:30 p.m. on Friday, 4 October**. The subject line of your e-mail should be: **101#1 Your Name** (e.g. 101#1<space>Ralph<space>Kramden). 8 points.

1. Go to Dr. Christianson's personal web page. On what *kind* (not the proper name!) of organism did Dr. Christianson do his PhD research?
2. Describe, as best you can, what this organism looks like.
3. Near the bottom of the Biology 101 homepage you'll find links to several organizations. One of them is the On-Line Biology Book. What does Figure 4 in Chapter 2 of this book describe? Keep this book in mind as you study for this class, as you may find it very helpful.
4. Now go to the Cells Alive home page. What is in the center of the matrix of nine images?
5. Go back to the Bi 101 homepage and click on the CDC National Prevention Information Network link. Four diseases/groups of diseases are listed in black boxes on the left. What are they?
6. Finally, go to the Bi 101 Lecture Review Index page. According to this page, what is the size range (in MB) for a full lecture mp3 file?

- E-mail your answers (no other methods accepted for this assignment) to Dr. Christianson by 1:30 p.m. this coming Friday, 4 October.
- The SUBJECT LINE should read 101#1 Your Name (both first and last) for this first assignment. Subsequent assignments will use 101#2, 101#3, etc., depending on which assignment you are turning in.
- Be sure to include your name in the body of the e-mail. If you send your answers as an attachment, be sure your name appears in the body of the attached file! Attachments must be saved as Word files (.doc or .docx), rich text format files (.rtf), or text files (.txt). I may not be able to read other file formats.
- Be sure to check your e-mail after some time has gone by to make sure the message hasn't been bounced back. The most common reason for a bounce-back is that the recipient's e-mail address was mistyped. Computers are very trusting and assume that you do everything correctly. Little do they know! They are also very obedient, and do whatever you direct them to do and in the manner in which you direct them to do it. Therefore, make sure you enter my correct e-mail address each time you write me!!!
- Computers *automatically* date and time stamp e-mails. Late e-mails will likely receive only 1/2 credit. Once answers are posted, no late assignments will be accepted. Assignments will be returned in the alphabetized boxes in the hall across from rooms 157 and 158 (first floor bathrooms), which are on the way to the Bi 101 teaching lab in the Science Building.
- **Be sure to keep a copy of each e-mail you send**, either in an automatic "SENT" folder or by copying each to yourself, at least until you have verified your grade at the end of the term

**If you need help with something, e-mail Dr. Christianson using the subject HELP and he will reply as soon as possible. You may also stop by his office for help or call him on the telephone.**

# CREATIVE PROJECT
## FOR
# DR. CHRISTIANSON'S BI 101 LECTURE

**Note:** Special thanks to Dr. Christine Oswald, Professor of Biology, Southern Oregon University, for giving permission to modify and use this project in Biology 101.

**Purpose:** Most students acquire a great deal of experience taking tests, writing papers, and completing lab reports in their classes. These evaluation tools help to assess a student's knowledge and understanding, but provide little room for creativity. In addition, the type of writing done by scientists to communicate their experimental results is just one mode of communication of ideas. It works well for its intended purpose, but doesn't work particularly well for other purposes, such as exciting young children about science or informing the general public about a topic. Science professionals work as park naturalists, museum curators, documentary film makers, science journalists, elementary school teachers, and in many other capacities requiring a range of communication styles.

In this project, you will demonstrate your knowledge about biology in a creative way of your choice, allowing you to display a deeper understanding of your chosen topic than might be shown on an exam. The project is very open-ended, and will require significant creativity and effort. It may take the form of creative writing, poetry, sketching, painting, play writing, the invention of a game, or some other imaginative activity. Regardless of the format you chose, *all projects must include significant factual and conceptual biological content related to either 1) a topic or topics covered in chapters 1 – 5 or 2) a topic or topics covered in chapters 6 – 12 (excluding pages 159 – 170 of Chapter 9 and Chapter 10) of the Bi 101 text.*

**The Assignment:** *Choose a topic or topics covered in class* from either Chapters 1 – 5 of the text if turning in on Thursday, 24 October or Chapters 6 – 12 (excluding pages 159 – 170 of Chapter 9 and Chapter 10) of the text if turning in on Thursday, 21 November. Check the syllabus to see what will be covered in class from those chapters. Present your topic(s) in a creative format that clearly demonstrates significant understanding of the facts, terminology, and concepts of that topic. There MUST BE SIGNIFICANT BIOLOGICAL CONTENT in the project, and it may NOT be presented simply as a standard paper summarizing the information. Some examples of formats that students have used in the past include:

- *collection of poems or an epic poem* (must be at least four pages, double spaced and in 12 point font)
- newsletter (must be at least four pages, single spaced; no more than three columns, and in 12 point font)
- marketing flyer and brochure (must be at least one page for the flyer and two pages for the brochure and include both)
- restaurant menu (including the front and back covers, it must be at least a six page menu)
- play, complete with stage directions (must be at least eight pages)
- comic book or collections of cartoons (must be at least eight pages)
- short story (must be at least six full pages, double spaced and in 12 point font)
- games (no Candy Land types of games; must include significant biological principles as part of rules; see note on games below)
- original song performance (original words and at least a three and a half minute performance time)
- short videos of newscasts, melodramas, or ??? (must include at least five minutes of content, not including title and closing footage)
- illustrated children's books (must be at least 10 pages)

Projects not meeting these criteria will be automatically downgraded when evaluated for execution (see below).

Any works (illustrations, music, etc.) not original to the project must include complete references.

Should you choose, you may include one or two other students from the class in your project, for a group size of no more than three students working together. Understand that if you do this, you will be raising the bar of expectation by increasing the number of minds contributing to the project. You will also need to explain exactly each person's part in the project on the back of the project scoring sheet.

Note that this project is worth 100 points, the same as two quizzes or half of the final exam in the class. Therefore, I expect that the time and effort required will be substantial, and have set my standards for grading it accordingly.

**Due Date:** This project is due no later than 10:30 a.m., the beginning of lecture, on one of these two days: Thursday, 24 October if our project relates to the first part of the class or Thursday, 21 November if your project relates to the second part of the class. A project turned in after these specified dates and times will be considered late and lose 25% of its value for each actual working day it is late. Projects may be turned in before the due date if you choose.

When turning in the project, you must fill out the top (and back, if a multi-student team) of the Scoring Sheet at the end of this document and include it with your submission.

**Turning in your project via turnitin.com:** If your project has a significant written component (poems, short stories, plays, song lyrics, etc.), the written portion must be turned in via turnitin as well as providing me a hard copy. You can find the appropriate link to turnitin by clicking on the link for Creative Project 1 or Creative Project 2 on the class Moodle page and following the

directions. If your project is essentially non-written in its nature (a work or works of art, comics, games, etc.), then just turn it in directly to me. Some projects may have both a written and a non-written component, such as song lyrics that must be run through turnitin, and a CD of the song performance, which must be turned in along with a printed copy of the lyrics to me directly.

**Grading:** Your grade on the project will be based on these three factors:

- **Creativity.** (30 points) The information must be conveyed in a fun, interesting, novel, unusual, or esthetically pleasing way. The written materials and illustrations typically found in a textbook or on a web page are not appropriate for this assignment. For example, a diagram of a heart and its chambers would not be suitable unless you add some novel twist to it that wouldn't ordinarily be found in a diagram in a textbook. Likewise, a project that amounts to little more than a quiz is also not suitable (see below for a note on games).

- **Execution.** (30 points) Whatever format the project takes, it should be done well. I will be judging the care and attention to detail that went into the project, whether written, performed, illustrated, or otherwise. Grammar, neatness, appearance, esthetics, and overall quality will contribute to this portion of the grade.

- **Content.** (40 points) The project must include *substantial* information about the topic. It should present the audience with important concepts and specifics about the science behind the topic. Remember that I'm using this as an indication of how much you know about and understand about the topic, If you include only minimal or general information, I'll assume that's all you know and will score this section accordingly.

**Special note on games:** It is difficult to obtain a good score with a game unless you develop a set of well thought out rules that obey rules of biological principles and a game board to match. In the past, students have created elaborate, detailed, beautifully constructed, content-filled games in which the objective and rules were fully integrated with biology (e.g., the object of the game was to grow the most biomass of plants and the rules of the game were based on plant physiology). On the other hand, some students created games that were nothing more than a series of quiz questions on cards where the objective was simply to move the most spaces by accumulating the most correct answers. The former scored high in all three areas, while the latter scored poorly in creativity and execution, and only so-so in content.

**Bi 101 Creative Project**
**Scoring Sheet – Attach to Project**
**Fall 2013**

☐ 1st section project
☐ 2nd section project

Title of Project: _____

Student Name(s):

_____

_____

_____

**If more than 1 student participated in this project, explain in detail on the back of this sheet the contribution of each student to the project.**

Type of Project:

☐ artwork ☐ booklet ☐ brochure ☐ cartoons ☐ comic book ☐ dance ☐ drawing ☐ game

☐ photography ☐ play ☐ poetry ☐ pottery ☐ short story ☐ song ☐ story book, child

☐ story book, adult ☐ video ☐ other (describe):

_____

**Do not write below line.**

**Creativity** (30 points) The information must be conveyed in a fun, interesting, novel, unusual, or esthetically pleasing way. The written materials and illustrations typically found in a textbook or on a web page are not appropriate for this assignment. For example, a diagram of the heart and its chambers would not be suitable unless you add some novel twist to it that wouldn't ordinarily be found in a diagram in a textbook. Likewise, a project that amounts to little more than a quiz is also not suitable (see note on games below).

Special note on games: It is difficult to score well with a game unless you develop a set of well thought out rules that obey rules of biological principles and a game board to match. In the past, students have created elaborate, detailed, beautifully constructed, content-filled games in which the objective and rules were fully integrated with biology (e.g., the object of the game was to grow the most biomass of plants and the rules of the game were based on plant physiology). On the other hand, some students created games that were nothing more than a series of quiz questions on cards where the objective was simply to accumulate the most correct answers. The former scored high in all three areas above, while the latter scored poorly in creativity and execution, and so-so in content.

☐ 30 ☐ 25 ☐ 20 ☐ 15 ☐ 10 ☐ 5 ☐ 0

**Execution** (30 points) Whatever format the project takes, it should be done well. I will be judging the care and attention to detail that went into the project, whether written, performed, illustrated, or something else. Grammar, neatness, appearance, esthetics, and overall quality will contribute to this portion of the grade.

☐ 30 ☐ 25 ☐ 20 ☐ 15 ☐ 10 ☐ 5 ☐ 0

**Content** (40 points) The project must include substantial information about the topic. It should present the audience with important concepts and specifics about the science behind the topic. Remember that I'm using this as an indication of how much you know and understand the topic, If you include only minimal or general information, I'll assume that's all you know and score this section accordingly.

☐ 40 ☐ 35 ☐ 30 ☐ 25 ☐ 20 ☐ 15 ☐ 10 ☐ 5 ☐ 0