

**Laboratory: BIOL 1107K, Principles of Biology 1; Sections I & J;**  
**Fall Semester, 2014**

*Lecture (BC 1011) - Cantonwine:*

*MWF 8:00 a.m. - 9:15 a.m.*

**Laboratory (BC 1083):**

**Section I (CRN 81735):**

**Tues.: 9:30 a.m. – 12:30 a.m.**

**Section J (CRN 81736):**

**Tues.: 2:00 a.m. - 5:00 p.m**

**Officially, this course is BIOL 1107K, a single 4 credit hour course with 3 h lecture and 3 h lab. However, students should understand that the Biology Department schedules teaching duties for faculty to include either lecture or laboratory for this course. This means that students registered for this course may have separate instructors for their lecture and laboratory. In the current case, students in the above sections have Dr. Emily Cantonwine for lecture and Dr. Russ Goddard for their Lab. At the end of the semester you will receive a single grade for this 4 hour course, however, the laboratory grade you earn will comprise a significant portion of that grade. During the semester, you will acquire points for laboratory and Dr. Goddard will compute a percentage score (#points obtained / # points available). It is this score that will be passed on to Dr. Cantonwine so that she can compute your course grade.**

**Instructor:** Dr. Russ Goddard, BC 2090. (Phone 249-2642; or Dept. office 333-5759)

(Office hours: MW 10:30 – 11:50 a.m.)

**Official Contact email:** [rgoddard@valdosta.edu](mailto:rgoddard@valdosta.edu) (Do Not Leave Voice Messages)

**Course Catalog Description:** BIOL 1107 Principles of Biology I; 3-3-4; Co-requisite for biology majors:

BIOL 1100. An introduction to the principles of biology for science majors, with an emphasis on the cellular nature of life. Concepts covered include the origin and early evolution of cellular life; cell structure, function, metabolism, and reproduction; cell signaling; and gene regulation in bacteria and eukaryotes.

**Required Materials:**

**Laboratory Manual:** Goddard, R.H. 2013. Methods and Investigations in Basic Biology, 6<sup>th</sup> ed.  
Hayden-McNeil Publishing, Plymouth, MI.

**Attendance:** Attendance in laboratory absolutely is required. Students should be seated at the beginning of class. A weekly quiz is given at the start of class and ends 15 min. after the beginning of class. It is nearly impossible to make up a **laboratory if you miss it! Points can only be attained by attending lab. There are no make-up quizzes.** In the event that a student will miss, or missed, a class s/he should notify the instructor in writing by email as soon as possible. The instructor will make the determination if attendance points should be waived that day, but any points assessed during the missed class (e.g. quizzes) will be forfeit. It is the student's responsibility to independently study the missed material, possibly checking with your lab colleagues for data acquired during a missed lab, so that they perform well during the following week's quiz.

**Grading:**

**Laboratory:** Students will be graded on their performance in laboratory based on:

Attendance (10 points per week if seated at scheduled lab time)

Weekly quiz grades (20 – 30 point quizzes every week): Semi-comprehensive

Selected homework assignments including group lab projects (20 – 50 point assignments)

Other miscellaneous assignments (variable credit).

Students should note that missing three labs (20% of labs) may result in the student obtaining a failing course grade (per student handbook).

**Schedule of LABORATORY EXERCISES:**

Date:	Topic:
<b>Aug. 19</b>	Lab Safety and General Lab Introduction <b>Laboratory Safety: Exercise 1:</b> "The Black Box" - Scientific Method;
<b>Aug. 26</b>	<b>Exercise 2:</b> Basic Light Microscope Operation and Microscope checkout: Use of the Light Microscope
<b>Sept. 2</b>	<b>Labor Day Week; no class</b>
<b>Sept. 9</b>	<b>Exercise 3:</b> Observation of living cells with Light Microscopy; Basic cellular organization; Independent microscopy lab proposals discussed. <b>Exercise 4:</b> Independent Microscopy Projects; Project proposal lab; how to collect useful data
<b>Sept. 16</b>	<b>Exercise 5:</b> Cellular Water Relations
<b>Sept. 23</b>	<b>Exercise 4:</b> Independent Microscopy Projects: Distribution of microscopic flora and fauna; Data collection lab
<b>Sept. 30</b>	<b>Exercise 6:</b> Protein extraction from biological tissues and determination of total protein, Spectrophotometry and Standard Curves
<b>Oct. 2</b>	Midterm date: Last day to drop without academic penalty is Oct. 9.
<b>Oct. 7</b>	<b>Exercise 7:</b> Enzymology Lab: basics of $\alpha$ -amylase activity;
<b>Oct. 14</b>	<b>Exercise 8:</b> Enzyme Regulation: "Investigation of the effects of temperature and pH on enzyme activity"
<b>Oct. 21</b>	<b>Exercise 9:</b> Photosynthesis
<b>Oct. 28</b>	<b>Exercise 10: Mitosis and Meiosis</b>
<b>Nov. 4</b>	<b>Exercise 11: Start:</b> Isolation of plasmid DNA from <i>E.coli</i> and restriction with MspA1I:
<b>Nov. 11</b>	<b>Exercise 12:</b> PCR-based VNTR Human DNA typing OR GMOs in food.
<b>Nov. 18</b>	<b>Exercise 14: Transformation of the pGLO plasmid into bacteria.</b>
<b>Nov. 25</b>	Thanksgiving Holiday
<b>Dec. 2.</b>	Analyze transformation experiment. <b>End of Course Assessment</b>
<b>Dec. 8</b>	Last Class Day