**Sul Ross State University**
**Syllabus for BIOL 2421—Spring 2016**
**Lab 1: Thursday 2:00-3:50 Lab 2: Thursday 4:00-5:50**
**WSB 203**

**Lab TA:** Ciara Brodie
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**Email:** cbro3885@sulross.edu
**Office Hours:** Tue 1:15-3, Thur 1:15-2, or by appointment

**Lecture Instructor:** Julie Green
**Office:** WSB 203
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**Required Text**: Benson's Microbiological Applications: Laboratory Manual in General Microbiology. Thirteenth Edition By; Alfred Brown and Heidi Smith.

**Course Description:** This course is designed to allow an exploration into the various aspects of microbiology. The following are major objectives of this course:

1. To identify and recognize the differences between prokaryotes and eukaryotes.
2. To develop and understanding of and appreciation for the nature and evolution of bacterial associations.
3. To develop an understanding of the terminology used in microbiology.
4. Demonstrate a thorough understanding of the modifications (physiological, morphological, and behavioral) needed for bacterium life cycles.
5. To learn how to use lab equipment and techniques to identify unknown bacterium.

**Program Learning Outcomes (PLOs) for Biology students:**

1. Understanding and implementation of scientific methodology.
2. Utilization of field techniques toward addressing scientific questions.
3. Be able to utilize statistics toward the analysis of data within the discipline.
4. Be able to effectively disseminate scientific findings using both written and oral communication.

**Grading Scale:**

| | |
|---|---|
| Lab Quizzes | 10 pts |
| Homework | 15 pts |
| I.D. of an Unknown Report | 25 pts |
| Midterm | 25 pts |
| Final Exam | 25 pts |
| **Total:** | **100 pts** |

**Grading Policy:**
**Quizzes** will cover the lab exercise to be done the current week, this means you must read the lab exercise before coming to class to do well on the quiz. If you are late to class, you do not get to take the quiz and there will be no make up quizzes.
**Homework** is due the week after the lab is completed for full points. All homework for the first portion of lab must be turned in by **March 3** or **April 21** for the second portion of lab, with a penalty of 5 points off. **No late work will be accepted.** Details for the Identification of an Unknown Bacterium Project will be announced.

**Attendance is mandatory.** There will be no make up labs. If you have a university approved excuse to be absent, you must let the instructor know *before* class.

**Ethical Conduct:** Cheating and/or plagiarism will not be tolerated and will be dealt with according to university policy.

**Failure to abide by all safety protocols may result in a failing grade and ejection from the lab.**

Tentative Schedule (subject to change)

| Date | Lab | Topic |
|---|---|---|
| **Jan 28** | 1 | Safety and Microscope |
| **Feb 4** | 6 | Microbiology of pond water |
| **Feb 11** | 7,9 | Ubiquity of bacteria, Aseptic technique |
| **Feb 18** | 10, 11, 12 | Pure culture techniques, Smear preparation, simple staining |
| **Feb 25** | 15, 13, 14 | Finish lab 10, gram staining, Negative and Capsular staining |
| **Mar 3** | | Midterm — All homework from previous labs due. |
| **Mar 10** | 16, 17, 18 | Spore staining, Acid-fast staining, motility determination |
| **Mar 24** | 27,37, 38 | Finish 18, Effects of Oxygen on Growth, morphological study of unknown bacterium, cultural characteristics |
| **Mar 31** | 39, 42 | Finish 27, 37 & 38, Oxidation and fermentation tests, use of Bergey's Manual |
| **Apr 7** | 31 | Ultraviolet light: Lethal effects, Unknown Project |
| **Apr 14** | 35 | Finish 31, Evaluation of Antiseptics, Unknown Project |
| **Apr 21** | | Finish 35 & Unknown Project, All Homework assigned after the Midterm Due |
| **Apr 28** | | Final Exam — Lab Clean Up |

*Students with any learning disabilities will be provided with accommodations. If you would like to request such accommodation because of a physical, mental, or learning disability, please contact the ADA coordinator at 837-8203, FH 112.*