GENERAL MICROBIOLOGY (BIOL 3401.01)
LABORATORY SYLLABUS
Summer 2017

LAB MANAGER
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LABORATORY SESSIONS

Lab A  MTWR  11:20 – 12:50 pm
Lab B  MTWR  01:00 – 02:30 pm
Lab C  MTWR  02:40 – 04:10 pm

All laboratory sessions are conducted at the Teaching Laboratory of Microbiology located at SCIE 2.214
There will be students who will be permanent TA’s in the fall semester assisting the instructor.

OBJECTIVES

You are expected to become familiar with (1) observation and manipulation of microorganisms, (2) preparation of media and culturing, (3) the utilization of stains to observe microbial structures and other tests for microbial identification, and (4) develop independence on research skills and sources of scientific information.

LABORATORY MANUALS

“Symbiosis - Laboratory Manual for General Microbiology. Pearson Publishing Company.” IBSN 0536784568. It has a yellow/green cover (not the red cover!). We also recommend the book entitled: “A Photographic Atlas for the Microbiology Laboratory” by Leboffe and Pierce (Morton Publishing Company) – IBSN 9780895826565). You are requested to bring these manuals to each laboratory session.

STUDENT LEARNING OUTCOMES

(1) The biology graduate knows the role of the cell in life and living systems, and understands the inter-relationships between sub-cellular structures that contribute to its functioning as a unit.
(2) The biology graduate understands the role of DNA in inheritance and can explain how environmental conditions influence natural selection processes and contribute to adaptation.
(3) The biology graduate is aware of the diversity of life, and understands inter-relationships among organs and organ systems within an organism, and inter-relationships between an organism and its environment.
(4) The biology graduate is familiar with the tremendous diversity in structure (organellar, cellular, organismal) and how that relates to the organismal niche or habitat.

(5) The biology graduate understands how the organization of a specific structure within an organism is related to a specific function, and how this function contributes to survival of the organism.

(6) The biology graduate understands the Scientific Method, is able to analyze and interpret data, and communicate research findings in both oral and written form.

(7) The biology graduate is prepared to accept employment in a variety of environmental and health related professions, enter medical and dental schools, pursue graduate degrees in the biological sciences, or teach in public or private schools.

ATTENDANCE TO LABS IS COMPULSORY (please read carefully)

Attendance is a STRICT requirement. Failure to attend will automatically translate in a zero for the corresponding quiz and lab report. If absent, you must contact your corresponding teaching assistant by person or e-mail 24 hours before or after the lab session otherwise a zero will be administered, and an absence recorded. A student may be dropped out from the course (lecture/lab) if he/she has more than 3 unexcused absences. Absences should be justified only with a valid written excuse (see syllabus of lecture as same rules applied for absences). Must be presented 24 hours before or after the absence. Students are requested to arrive on time. We reserve the right to lock the door after session start. Please avoid leaving to the hall during sessions unless extremely necessary and with the permission of instructor. No texting during lab sessions.

PARTICIPATION

Every student is expected to participate in all exercises during all lab sessions. Adherence to our regulations will count towards a grade component called "effort and participation" (a component that reflects your performance, attendance, conduct, respect, and motivation).

GRADING*

The laboratory for BIOL3401 represents 20% of your final course grade.
The final lab grade will be based on the following components:

<table>
<thead>
<tr>
<th>Laboratory Activities</th>
<th>Value (%)</th>
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<tbody>
<tr>
<td>Quizzes</td>
<td>30</td>
</tr>
<tr>
<td>Mid-term exam</td>
<td>30</td>
</tr>
<tr>
<td>Final exam</td>
<td>30</td>
</tr>
<tr>
<td>Effort and participation</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

*Lab Instructor may split values of each of these lab grade components without altering the total percent value.
Important note: Binders with required laboratory written material must be submitted to the laboratory TA's BEFORE the final exam is taken. If this is not done, then the final exam cannot be taken.

QUIZZES

Announced short quizzes will be given at the beginning of lab sessions. The quiz will cover the material corresponding to that date's lab session procedures, and results of the previous session. About 5-10 minutes will be allocated for the quiz. If you are late, no extension of time will be given. Please be on time for the lab sessions. If absent for the quiz then your grade will be zero. No exceptions will be made.

PROPER LAB COAT

Students with no lab coat or lab apron will NOT be admitted into any lab session in which microorganisms and/or chemicals are handled. Inform the instructor before class if you could not get a lab coat. This is an official regulation designed for your own protection and your safety. Please be informed that there will be no exceptions to this rule. If you are not admitted into the lab then an absence will be recorded with the corresponding zero for quiz and report. Please make sure not to forget to wear a clean lab coat for every session!! Keep all bags, books, etc. inside the provided cover and NOT on the floor or top of bench. All caps must be turn backwards. Floor and bench surfaces might be contaminated (same as hospitals and health offices): prevention of an infection is the best medicine.

SOME TENTATIVE TOPICS

Use and care of the microscope
Examination of living microorganisms
Preparation of smears and simple stain
Negative staining
Gram staining
Acid-fast staining
Endospore staining
Microbes in the environment
Transformation of bacteria
Serial dilutions
Special media
Carbohydrate catabolism and fermentation
Rapid identification methods
Oxygen and the growth of bacteria
Microbes in water

The order or titles of the above topics is subject to change depending on availability of cultures and materials.
It is strictly prohibited to remove any microbial culture or chemical agent from the laboratory without approval from the instructor. Failure to adhere to this policy will result in disciplinary action by UTRGV authorities.

**GENERAL SAFETY TO ABIDE TO**

Wear a laboratory coat, smock, or lab apron when working in the laboratory. This will protect clothing from contamination or accidental discoloration by staining solutions.

Students should wash their hands before and after the lab sessions, using a disinfectant soap if possible.

Benches must be disinfected (5% Lysol) before and after sessions.

Avoid contamination of the benches, floor, and wastebaskets.

Do not place anything in your mouth and eyes while in the laboratory.

Flame wire loops and needles before and immediately after transfer of cultures.

Do not move through the lab with a loop or pipette containing infectious material.

Tie long hair back and up. Restrain fluffy or flyaway hair with a scarf, cap, headband, or other covering.

Do not wear shoes with leather soles, if possible.

Return all reagents, cultures, glassware, microscopes to their proper places.

Erase ink marks from tubes with ethanol at end of session.

Eating, drinking, and smoking are forbidden at all times in the lab.

Report all accidents and spills to your Instructor.

Do not take living cultures out of the laboratory.

Place all property inside covers not on the floor or on the bench.

Read posters on display on the walls of the lab.

Note ==> Failure to keep your bench clean and/or mishandling of the assigned microscope (example, not removing oil from objectives, leaving a slide on the stage, etc.) will result in a 20-point reduction from your REPORT grade. Laboratory bench and sink should be left as found: clean and neatly organized.

**LABORATORY BENCHES AND SURROUNDING AREAS MUST BE LEFT CLEAN, WELL ORGANIZED AND DISINFECTED AT THE END OF EACH LABORATORY SESSION. BEFORE LEAVING WASH WELL YOUR HANDS WITH SOAP.**

**STUDENTS WITH DISABILITIES**

Students with disabilities are encouraged to contact the Disability Services Office for a confidential discussion of their individual needs for academic accommodations. It is the policy of the University of Texas Rio Grande Valley to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Disability Services Office (DS), University Center # 108, 665-7005 or disabilitieservices@utrgv.edu