LAB MANAGER

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SCIE 1.344

TEACHING ASSISTANT

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Office hours on Thursdays from 4:30 to 5:30 p.m.

OBJECTIVES

You are expected to become familiar with a variety of laboratory techniques involving manipulation of microorganisms affecting humans. Use of antimicrobial substances, selective and differential growth media and microscopic observations. Discussion of videos that show human disease caused by pathogenic bacteria and viruses. Projects will be given to stimulate research skills.

LABORATORY MANUAL


COURSE WEB PAGE

Please regularly consult the medical microbiology web page for all announcements on lab activities. It is intended for your regular use and consultation. The URL address is:
http://faculty.utrgv.edu/luis.materon/3403

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. TA’s 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 TA.

PARTICIPATION

Every student is expected to fully participate in all exercises during all lab sessions, particularly if working in groups.

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.

GRADING

The laboratory for BIOL3403 represents 20% of your final course grade. The final lab grade will be based on the following components:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Value (%)</th>
<th>Dates and due dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term exam</td>
<td>20</td>
<td>To be announced in late February</td>
</tr>
<tr>
<td>Lab reports</td>
<td>20</td>
<td>Due before every lab session</td>
</tr>
<tr>
<td>Lab project</td>
<td>20</td>
<td>An oral presentation</td>
</tr>
<tr>
<td>Final exam</td>
<td>30</td>
<td>To be announced</td>
</tr>
<tr>
<td>Effort</td>
<td>10</td>
<td>Based on your interest, motivation and participation in all activities of the lab</td>
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MID-TERM EXAM

A written exam that will test any of the activities conducted during the previous laboratory sessions. It is based on hand-on exercises, discussions, visual presentations or any material presented in the lab.

LAB REPORTS

If requested by the instructor, a typed report of any lab activity should be submitted. The instructor assumes that you all students are able to write a technical report and a literature review. Make an effort to provide quality in your work. Technical names of microorganisms must be properly written and not misspelled otherwise 10 points are deducted. All reports are due at the beginning of the next laboratory session whenever requested.

Reports must include:

Cover page with title, course name, lab section, your name, date. Page size 8.5 x 11". Normal font. A relevant introduction to the topic. Include references and at least 3/4 of a double spaced page.

Objectives: write the objectives of the experiment.

Materials and Methods: Include materials used and procedures that were used in the test.

Results: where you write results obtained, use tables, drawings, reactions, etc. (if drawing a circle then use a compass, use color pens to indicate color of stains, etc.)

Discussion: where you write about your results. Discuss what your learned during the procedures.

Conclusions: a brief, clear and concise statement on the experiment conducted.

Bibliography: include hard-copies of the information sources, e.g. internet sites, articles, etc.

Internet citations must be separated from text citations.

Save your money! Do not submit your lab reports in plastic covers or binders. Must submit your report and project materials properly stapled (not corner-folded or clipped).

Note: If the material to be reported involves an oral presentation then the above is not needed. Just write a one-page description of the presentation, double-spaced with concise and clear information on the topic presented. A cover page must be inserted.

ON DUE DATE AND LATE REPORTS: reports are due whenever requested by your instructor, generally, before the start of the next lab session. Late reports will be penalized with a 25-point deduction if submitted within the same working day before 4:30 pm. Fifty points, if submitted within the next day; and, if later on, 90 points will be deducted. Late reports must be handed in person to the instructor. Otherwise, they will be ignored and 90 points deducted. Reports are NOT to be submitted by e-mail, to my mailbox or under the door of my office. Please have this very clear in your mind to avoid unnecessary and unpleasant communications with the instructor. Please do not leave this task to the last week and organize yourself well in advance.

NOTE: Avoid copy & paste. Grade will be based on originality. Papers will be submitted to PlagiServe to check for percent of plagiarism. Also, be aware that the instructor have a bank of previous reports from past courses. Any copy of a past report or project material will be treated as plagiarism and the grade will reflect it.
LAB RESEARCH PROJECTS (Oral and written)

A comprehensive PowerPoint oral presentation will be requested.

The topic of the project is on medical microbiology with emphasis on an immunological topic or on a causative agent of disease (not on a disease itself but on both: microbe and disease).

The oral presentation should last minimum 15 minutes. Format: PowerPoint. Student should prepare a quality-type presentation and must be able to generate discussion among students and answer their questions. Topics and dates will be posted on the web site, section of projects for each lab session. Students must check their presentation in advance with the instructor for advice and corrections. Presenters are requested to act professionally and to dress formally (simulation of a real job interview).

WEARING A LAB COAT IS MANDATORY

Students without a clean and appropriate lab coat will NOT be admitted into any lab session in which microorganisms or chemicals are handled. No paper-like lab coats are allowed. This is required by state regulations for your own protection. 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.

LAB SESSION TOPICS

Please note most human pathogens cannot be handled in our laboratory for your own safety. Some of the topics presented in the lab involve manipulation, identification, and culturing of certain bacteria found in the human and animal bodies. Preparation of growth selective and differential media to detect *Escherichia coli* or *Salmonella* from food sources. Observation of bacterial pathogens under the microscope. Use of standard techniques to detect bacterial pathogens. Use of some biochemical tests for the differentiation of bacterial pathogens. Observation of slides prepared by hospital personnel, and those isolated from your own body, will be cultured, maintained and carefully observed. Description and use of available laboratory equipment. Discussion of latest research on emerging diseases caused by microorganisms. The instructor will also make available a series of videos on infectious diseases that will be presented to you and discussed throughout the course.

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 Pan American 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 Room 108, telephone 956-665-7005 or at disabilityservices@utrgv.edu
GENERAL SAFETY GUIDELINES YOU MUST FOLLOW

- 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.

Students must sign a safety contract at the beginning of first lab session once general safety guidelines have been presented to you by TA.