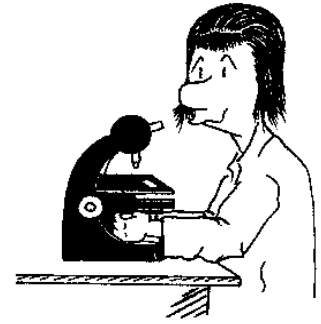


Microbiology (BioSc222)

Syllabus



Instructors

Dr. Dave Westenberg
105A Schrenk Hall (Office), G-6 Schrenk Hall
(Lab)
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appointment
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Course Webpage - All material in this syllabus plus supplemental lecture material can be found at the following URL: <http://www.mst.edu/~microbio/Bio221.html>

Textbook. - *Techniques in Microbiology: A Student Handbook* by John Lammert

Laboratory Procedures

Read and understand all the safety precautions. Good aseptic technique is the key to success in the microbiology laboratory and the successful completion of each exercise depends on strict adherence to good aseptic technique. The Olympus microscopes used in our microbiology laboratory are high quality but are useless if not handled with proper care. Proper use of your assigned microscope to reliable results

Grading

The laboratory grade is worth a total of 300 points. There will be no make-up labs. The lab grade will be broken down as follows:

150 points - Lab notebooks
100 points - 2 Lab reports
50 Points - Poster

Lab notebooks. Each student is to keep a detailed lab notebook that is to remain in the lab. Notebooks will be checked routinely for completeness and neatness.

Lab Reports. Each student will submit two laboratory reports. One report will be based upon Microbe Safari and one on biodegrading bacteria. Projects will be done in groups of 4 but each student is to submit their own report.

Poster presentation. Each group of 4 students will prepare a group poster describing the results of their microbe safari project. The parts of the poster are to include the following

sections: abstract/summary, introduction, results, discussion (results and discussion may be combined), references. If interested, selected posters may be submitted for participation in the annual UMR undergraduate research symposium in April.

Lab Schedule

- 1/15 Introduction to the microbiology lab, writing laboratory reports, posters.
- 1/17 Aseptic technique, media preparation, lab notebooks
- 1/22 Microscopy
- 1/24 Simple stain, Negative stain, Gram stain
- 1/29 Microbe Safari
- 1/31 Enrichment techniques
- 2/5 Spore stain, Acid-fast stain
- 2/7 Testing disinfectants, discussion of safari results
- 2/8 Lecture Exam 1**
- 2/12 Testing metabolic properties of bacteria. Repeat/revise microbe safari
- 2/14 Winogradsky columns
- 2/19 Differential media
- 2/21 Biodegradation - packing peanuts
- 2/22 Lab reports on Microbe Safari due**
- 2/26 Koch's postulates - observing starch degraders
- 2/28 Koch's postulates - isolating starch degraders
- 3/4 Koch's postulates - reintroducing starch degraders
- 3/6 Koch's postulates - re-isolating starch degraders
- 3/7 Lecture Exam 2**
- 3/11 Plasmid isolation
- 3/13 St. Pat's break - no lab
- 3/18 Transformation
- 3/19 Posters on Microbe Safari due**
- 3/20 Conjugation
- 3/25 Spring break - no lab
- 3/27 Spring break - no lab
- 4/1 PCR amplification
- 4/3 16S Sequencing
- 4/8 16S rRNA sequence analysis
- 4/10 PCRMC field trip
- 4/11 Lecture Exam 3**
- 4/15 Symbiosis - termites
- 4/17 Symbiosis - soybeans
- 4/18 Lab reports on biodegradation projects due**
- 4/22 Wastewater treatment plant field trip
- 4/24 Bacteria and humans
- 4/29 Identifying human pathogens
- 5/1 Antibiotic sensitivity testing
- 5/6 Field Trip - St. James Winery
- 5/8 Microlunch