Texas A&M University-Corpus Christi
College of Science and Technology

BIOL 5335 – AQUATIC MICROBIOLOGY

SYLLABUS

INSTRUCTOR: Dr. Joanna Mott

OFFICE: CS 246 (Faculty), ST 319 (Administrative).
Office hours: 2-3 pm T CS 246; 11-12 am W ST 319 or you may
make an appointment with Geri (ST 319, 825-2754,
Geri.fernandez@tamucc.edu)
Phone: 825-6024
Email: Joanna.mott@tamucc.edu

MEETS: TTH 11.00 -12.15 pm. BH 222

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ADDITIONAL READINGS:
Students will be expected to search and evaluate current
literature and to present and lead discussion of examples of
research on topics covered in class. Additional readings on
current topics from a range of journals and texts such as
Applied and Environmental Microbiology, J. Applied
Microbiology, Aquatic Microbiology, Aquatic Microbiology: an
ecological approach, Advances in Microbial Ecology, Water
Research, Water and Health, Journal of Environmental Quality,
American Society for Microbiology News, Handbook of Methods
for Aquatic Microbial Ecology. Microbial Ecology of the Oceans.
T.E. Ford, will be assigned throughout the course

COURSE DESCRIPTION:
BIOL 5335. AQUATIC MICROBIOLOGY. 3 sem. hrs. (3:0)
Types and distribution and roles of microorganisms in
aquatic environments. Interactions with other organisms.
Role in nutrient cycling, degradation of organic substances,
pollution, water purification. Prerequisite: BIOL 2421
Microbiology or equivalent.
STUDENT LEARNING OUTCOMES:

- Students will gain a broad understanding of the roles and significance of microbes in aquatic environments, including nutrient cycling, interactions with other organisms, etc. and be able to predict microbial assemblages and dynamics for different habitats.

- Students will compare and contrast the factors in a range of aquatic habitats (stream, river, lake, estuary, salt marsh, ocean etc.) which influence the distribution and abundance of microorganisms in these environments.

- Students will be able to propose methods to study microorganisms in aquatic environments based on class discussion and research articles.

- Students will be able to discuss and evaluate areas of current aquatic microbiology research and development and prioritize their impacts on the field.

- Students will be able to describe uses of microbes in areas of aquatic environmental concern and generate examples based on current literature.

ATTENDANCE:

Students are expected to attend every scheduled class and be on time. Class presentations and participation are part of the evaluation. It is the responsibility of the student to obtain any material missed during an absence from his/her classmates. The instructor should be notified PRIOR to class if student will be absent (except in emergency situations). Cell phones should be turned off or on silent mode.

EVALUATION:

Exam I (Written) 25%
Exam II (Written) 25%
Final comprehensive written exam 30%
Research paper following MMBR format and oral 20 minute presentation 10%
Class assignments (primarily oral presentations and leading discussion of research articles). Number will depend on class size. 10%
Students will be expected to participate in class discussion and bring/review scientific papers when required by the instructor.

Except in cases where prior arrangements have been made with the instructor, there is no provision for making up late work and/or missed quizzes or exams.
Evaluation is ongoing to enhance experimental learning, providing the student with feedback about performance in meeting the course objectives. Conferences with the faculty provide opportunities to discuss progress toward the course objectives.

Grading is a process of measuring the outcome of learning against standards and assigning a symbol to the level of performance achieved. The final course grade, therefore, rests with the professor.

**All students are expected to conform to college-level standards of ethics, academic integrity, grammar and spelling. In particular, you should review pages 26-27 of the 2008—2009 Graduate Catalog.

STUDENTS WITH DISABILITIES:
All programs in Life Sciences (LSCI) comply with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you need disability accommodations in this class, please contact the instructor as soon as possible with your accommodation letter from TAMU-CC Services for Students with Disabilities Office. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office (located in Driftwood 101) at 825-5816. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations.

BIBLIOGRAPHY/REFERENCES
A list of specific reference articles is not included in this syllabus as the scientific literature used during the class will be current and updated each semester. Students will be expected to search and evaluate current literature and to present and lead discussion of examples of research on topics covered in class.

Articles will be taken from a range of journals such as:
- Advances in Microbial Ecology
- American Water Resources Association
- Applied and Environmental Microbiology
- Aquatic Microbiology
- Handbook of Methods for Aquatic Microbial Ecology
- Journal of Applied Microbiology
- Journal of Bacteriology
- Journal of Environmental Quality
- Journal of General Microbiology
- Microbe
- Microbiology and Molecular Biology Reviews
- Mycologia
- Water and Health
- Water Research
- Water Science and Technology
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TENTATIVE COURSE OUTLINE:

Topics may vary depending on student background, current issues in aquatic microbiology, etc. Please note that this schedule is subject to changes, which will be announced in class. Responsibility to keep up with changes, assignments etc. lies with the student.

I. Introduction to aquatic microbiology.

II. Review of groups of microorganisms, their roles and significance in aquatic environments.

III. Biogeochemical cycling, degradation, photosynthesis etc. Microbial metabolism as it relates to microbe distribution.


EXAM 1

V. Freshwater microbiology – streams, rivers, lakes, groundwater. Factors affecting abundance and distribution of microorganisms. Importance of different microbes in these environments.

VI. Wetland/swamp/saltmarsh/estuary microbiology. Factors affecting abundance and distribution of microorganisms. Importance of different microbes in these environments.

VII. Marine microbiology. Factors affecting abundance and distribution of microorganisms. Importance of different microbes in these environments.

EXAM 2

VIII. Current topics in aquatic microbiology.

IX. Applied aspects of aquatic microbiology - student papers/presentations.

Exact dates of exams will be announced in class. **Final Exam: Tentative - 11:00 -1:30 Tuesday, May 12 (pending final schedule from Registrar’s Office)**