

Syllabus

MBIO 601 Molecular Microbiology

Fall 2023 (Tuesdays and Thursdays, 3-4 p.m.)

Course Director: Jim Graham (j.graham@louisville.edu)

Lecturers:

Carolyn Roberson (cdrobe04@louisville.edu)

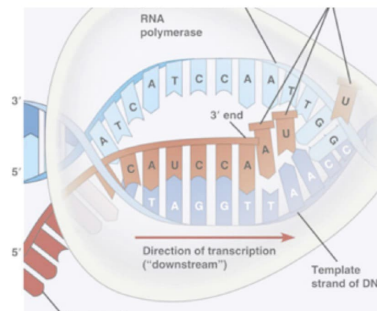
Yousef Abu Kwaik (yakwai01@louisville.edu)

Jon Warawa (jmwara01@louisville.edu)

Matt Lawrenz (mblawr02@louisville.edu)

James Collins (jtcoll06@louisville.edu)

Ken Thompson (kenneth.thomson20@gmail.com)



Course Content

This course is intended to prepare graduate students for research in fields where microbiology is the major focus, or of high relevance. It is centered on the topic of prokaryotic molecular biology, an area that is growing more distinct from the same field of research on eukaryotic cells and more complex organisms. We cover the biochemical make-up, function, and diversity of microorganisms, primarily bacteria. The course begins with topics in the area of microbial structure, growth, metabolism, DNA replication, genetic exchange, transcription, protein synthesis and secretion, and relevant regulatory mechanisms, with emphasis on areas relevant to microbial pathogenicity. Functional aspects covered include genomics, antibiotic action, mechanisms of delivery of bacterial factors into host cells, biofilm formation, nutrient acquisition and competition in vivo, and concepts of microbial virulence.

Material will be presented at a first year graduate level, assuming that the students have a background in microbiology from previous undergraduate coursework, or have a high interest and sufficient motivation to learn at the state of the art level in this field. The course is primary intended as a required class for all students seeking a PhD degree in Microbiology and Immunology, and will therefore provide all the basic foundation of knowledge need to build on in becoming an expert in the field or closely related fields in Biology and Oral Biology. This course is a prerequisite for the advanced medical bacteriology graduate seminar in the department, Microbial Pathogenesis (MBIO 687). Virology is covered in a separate required course (MBIO 618) that is directed by Dr. Chung.

The optional textbook for the course is the 3rd Ed of Snyder and Champness, Molecular Genetics of Bacteria, which is available as a low cost used textbook, as it is no longer the most recent addition. Instructor-provided video recordings, slides and handouts are the primary required study material, as provided at the time of each lecture. Students may also want to consult other introductory microbiology textbooks in the library (or online) to review information and obtain additional perspectives on the topics covered.

We will meet in person Tuesdays and Thursdays from 3-4 p.m which may change after the semester begins if there are pandemic issues at UofL. The updated lecture schedule is a separate Blackboard document.

Evaluations and Grading Policy

Grades for this course will be based on the evaluation of student performance in three examinations, according to the following percentages:

Exam I	30% (7 topics)
Exam II	30 % (8 topics)
Exam III.....	30% (8 topics)
Blackboard learning modules	10%

Each exam will cover the lecture material for that section in the course (no comprehensive final). These exams will be primarily in essay or short answer format. The amount of material and level of coverage will require significant study and note taking, including review of lecture recordings online and time to study for each of the three exams- each Instructor will be writing their own exam questions. Online learning modules created for the course will be made available in the Blackboard Assignments area- integrated quizzes can be retaken until scored as complete or incomplete based on a score of 90% or better.

Final Grades

The final letter grades for this course will be based on achieving the following percentages for the course:

A+	96-100
A	89-95
A-	88
B+	85-87
B	79-84
B-	78
C+	75-77 (note, a B- or above is required by most UofL graduate programs)
C	70-74
D	69-63
F	62 or less

The course director may adjust the scores for all students on individual exams based on the class average or high score. These changes will only potentially increase student scores.

Attendance

Course work is an essential and valuable part of your graduate students training that goes beyond your individual dissertation or thesis work. As this class only meets twice a week for just ~3 months, your attendance and participation is required. (You are expected to plan your experiments around these lectures and exams, and it is your responsibility to convey your commitment to additional learning outside the lab to your advisor.)

As a Community of Care, all Cardinals are expected to abide by public health guidelines and regulations as published by the University. For Fall 2020, this includes:

- 1) wearing of cloth/paper masks (covering nose and mouth) when in shared indoor spaces like classrooms, or when appropriate physical distancing cannot be maintained. (Per the code of student conduct--revised July 2020--a student who refuses to follow these guidelines may be asked to leave a classroom)
- 2) staying home when sick—any UofL community member experiencing fever, consistent dry cough, or other symptoms of contagious disease should remain at home until symptoms subside or advised that it is safe to return by a medical professional.
- 3) practicing good hygiene and responsibility for one's own surrounding.
 - a. Cover sneezes and coughs
 - b. Wash hands frequently with soap and water when possible, use hand sanitizer when soap and water are not available
 - c. Wipe down frequently touched surfaces
 - d. Maintain 6 feet physical distancing when possible

Title IX/Clery Act Notification

Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain **confidential** support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to **University faculty or instructors** of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is **not confidential** under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the Sexual Misconduct Resource Guide (<http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure>).