

Clinical Research, Assessment, Education, and Quantitative Methods: MCB5666

Contact information

Instructor: Dr. Jaysankar De (jde@ufl.edu) 352-273-4206.

Office: Microbiology and cell science department, Room 1045.

Office hours: 11:00am – 12:00 pm (Monday).

Course time and location

This course will be taught 100% online and all lectures will be recorded and available through Canvas. This is a 1-credit course that is offered in the Spring and the Fall semester.

Welcome!

We are excited to have you on this course where we will explore the current literature on Clinical Research, Assessment, Education, and Quantitative Methods (CREQM). The focus of this course is on the Clinical laboratory microbiologist's crucial role in patient care. Prepare to engage with complex concepts, participate in discussions, and apply your knowledge to real-world scenarios. Whether you are new to the subject or looking to deepen your understanding, we are here to support you every step of the way.

Let us dive into the clinical microbial universe together!

Course description

Explores clinical laboratory microbiology for healthcare, research, and lab science students. It emphasizes theoretical knowledge and practical applications, focusing on interprofessional healthcare, integrity, and education theory. Students learn scientific inquiry, research steps, topic selection, literature evaluation, data analysis, and various research designs, including quantitative and qualitative methods.

What you will know at the end of the course

At the end of this course, you will possess a comprehensive understanding of several key aspects of the role of a laboratory technician microbiologist. Listed below are some essential areas of knowledge you will develop:

- Utilize knowledge of objectives and instructional design to guide your study for CLM courses and apply this knowledge toward life-long learning.
- Describe common research types and research designs.
- Understand the purpose of literature review and be able to analyze and synthesize the existing literature.
- Use statistical analysis to evaluate student assessments and propose modifications to the instructional unit to improve outcomes.
- Create and present case study information in a poster format.
- Improve interprofessional and patient / public communications.

This course will provide you with the essential skills and knowledge needed to excel in the dynamic field of clinical laboratory microbiology and prepare you for further studies or a career in healthcare or research.

Required Book

- Bailey's Research & Evidence-based Practice for the Health Professional, 4th Edition. Jennifer E. Lape, Angela N. Hissong. F.A Davis Company. 2025. ISBN-13: 978-1-7196-4868-4 (ISBN-13: EBK48684).
- Additional course materials will be provided through Canvas as links to web sites, videos, handouts, etc. which students must review for the course lessons/modules.

Pre-requisite

Students must be enrolled in the Clinical Laboratory Microbiologist graduate certificate program to take this course.

Course objectives

Upon completion of this course, the student will be able to:

- Apply Maslow's Hierarchy of Needs and Bloom's Taxonomy to the development of an instructional unit for a variety of learning audiences.
- Compare and contrast different methods of research design and explain when each is appropriate.
- Perform a literature investigation on a subject related to laboratory medicine.
- Develop a summary of the literature on a given topic.
- Comprehend different methods of data collection and their relationship to different research designs.
- Utilize knowledge of research methods to evaluate published research.

Getting started

All course correspondence as well as assignments, exams and discussions will be available via eLearning Canvas Website <https://elearning.ufl.edu/> . You may also contact the UF help desk at 352-392-HELP, option 2.

Your section specific site is maintained and administered by your instructor. You are responsible for the material posted in your section.

Please Remember to check the Announcements and Mail each day in Canvas. "I did not know about the assignment, deadline..." is NOT an accepted excuse.

All assignments are expected to be submitted electronically through Canvas. Each assignment is processed through Turnitin.com and as such is checked for plagiarism. Students are encouraged to use Draft Coach to check their work for plagiarism before submitting their assignments.

Have a Question? Please see us - we are here to help!

Expectations of the students

As a student on this course, you are expected to engage actively and take responsibility for your learning. Here are key expectations to help you succeed:

1. Engagement and Participation

- Participate in discussions to enhance your understanding of the material.
- Contribute thoughtfully to class discussions, sharing insights and asking questions to clarify concepts.

2. Preparation and Study

- Complete assigned readings from **Research for the Health Professional 3rd Edition. Angela N. Hissong, Jennifer E. Lape, Diana M. Baily, F.A Davis Company, 2014**, and other materials provided before each class.
- Review lecture notes regularly and prepare for quizzes and assessments to reinforce your knowledge.

3. Critical Thinking and Application

- Approach case studies and problem-solving exercises with a critical mindset, applying theoretical concepts to real-world scenarios.
- Engage in collaborative learning with peers to deepen your understanding and enhance your critical thinking skills.

4. Professionalism and Ethics

- Maintain a professional demeanor in all interactions, respecting the diverse perspectives of your classmates and instructors.
- Adhere to ethical standards in discussions about patient care and the implications of microbiological practices.

5. Time Management and Commitment

- Allocate adequate time each week for study and review, balancing course requirements with other commitments.
- Stay committed to your personal and professional growth throughout the course, seeking help when needed.

By embracing these expectations, you will foster a positive learning environment and enhance your understanding of Clinical Research, Assessment, Education, and Quantitative methods, preparing you for future endeavors in healthcare or research.

Evaluation of learning

For the best practices with time management on this course, we suggest setting a specific time each week just as if you were attending a face-to-face course. At that time go through the modules and other course materials then go to the weekly assignment and quiz. The primary assignments in this class include online quizzes, discussions, and written assignments. Written assignments will be turned in through Turnitin on the Canvas course web site. Discussions are graded on a pass/fail basis. Students will need to contribute at least one individual post directed toward answering the discussion question AND one response posting to a student or the instructor to receive the online Discussion points. Learning will be evaluated based on the following criteria:

- Engagement and participation - 10% (50 points)

A total of three hours of time will be needed per week. As part of the instructional time, students will listen and review online material. An additional two hours is recommended for study that includes reviewing, reading, writing, studying, researching, and general study. The individual study time for each student may vary and some may require additional effort. Students are encouraged to contribute thoughtfully to discussions, ask questions, and engage with their peers to deepen their comprehension of course material. Regular attendance and active involvement will ensure that students not only enhance their own learning but also enrich the experience for their classmates.

- Quizzes - 50% (250 points)

Online quizzes are related to the content and readings listed for that week. Some quizzes are embedded in the lessons while other quizzes are separate assignments in Canvas. Links to the quizzes will be in each weekly module.

- Discussions - 10% (50 points)

A discussion question will be posted on 2nd week and another after 7th week. Students will need to contribute at least one individual post directed toward answering the discussion question AND one response post to another student to receive the online discussion points. The rubric for grading these discussions will be available on the course canvas.

- Writing Assignments (short paper) - 10% (50 points)

Students will learn how to draft a short paper as part of their research learning. During this course, students will draft and write a short paper (bibliography included) on clinical microbiology subjects. Rubric for grading these papers can be found on canvas.

Because this course is part of the CLM professional program all assignments must be completed and submitted as directed (regardless of being late). A 10% deduction to your grade will be applied for each day the assignment is late. It is essential for students to review and synthesize their understanding consistently, as success on the assignments will reflect both their ongoing engagement with the course material and their preparedness to apply their knowledge in clinical contexts.

Cheating (usage of unauthorized support material/notes) will automatically be reported according to the Student Honor Code and Student Conduct code for consideration of disciplinary action.

- Final Exam - 20% (100 points)

Items graded	Points	%
<i>Participation</i>	50	10
<i>Quizzes</i>	250	50
<i>Discussions</i>	50	10
<i>Short paper</i>	50	10
<i>Final Exam</i>	100	20
Total	500	100

We do not curve, and the grading scale will not be adjusted based on class performance. You will have 2 weeks to challenge your grade and request a change of grade by contacting the course's instructor.

Final grades will be based on the following performance standards:

>92.0%	A	>72.0%	C
>90.0%	A-	>70.0%	C-
>87.0%	B+	>67.0%	D+
>82.0%	B	>62.0%	D
>80.0%	B-	>60.0%	D-
>77.0%	C+	<60.0%	E

Other UF policies

Grades and Grade Points:

For information on current UF policies for assigning grade points, see
<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/> .

Attendance and Make-Up Work:

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/> .

Online Course Evaluation Process:

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals.

Guidance on how to give feedback in a professional and respectful manner is available

at: <https://gatorevals.aa.ufl.edu/students/> . Students will be notified when the evaluation period opens and can complete evaluations through the email, they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/> . Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results/> .

Academic Honesty:

UF students are bound by The Honor Pledge which states “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. See the [UF Conduct Code website for more information](#). If you have any questions or concerns, please consult with the instructor or TAs in this class. It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported according to the Student Honor Code and Student Conduct code for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: (New Link: <https://policy.ufl.edu/regulation/4-040/>).

In-Class Recording:

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal education use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A “class lecture” is an educational

presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and deliver by an instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentation such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private 3 Revised: September 2024 conversations between students in the class or between a student and the faculty or guest lecturer during a class session. Publication without the permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless, of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Artificial Intelligence (AI) Statement

Use of Artificial Intelligence In academic work

As a class, we will be exploring the use of artificial intelligence (AI) as a tool to facilitate idea generation, organization, and research. AI-powered tools, such as language generators and citation managers, can be useful for creating outlines, definitions, and

even assisting with literature reviews. However, I want to emphasize that AI should be used as a supplement to, not a replacement for, human critical thinking and analysis.

When using AI, it's essential to employ a critical eye and not rely solely on its output.

While AI can provide suggestions and ideas, it is not infallible and can produce errors or incomplete information. To ensure the accuracy and integrity of your work, please:

- Verify the credibility and reliability of AI-generated sources
- Use AI as a starting point for your research and analysis, not a finish line
- Complement AI output with your own critical thinking and analysis
- Properly cite and acknowledge AI-generated content

To support your academic work, I encourage you to use AI tools for tasks such as creating outlines, organizing research papers, and formatting citations. However, avoid using AI to answer questions or complete assignments that require original thought or critical analysis. Instead, use AI to prepare for class discussions, brainstorm ideas, and refine your understanding of complex concepts.

By using AI thoughtfully and responsibly, you will enhance your productivity, creativity, and academic success. If you have any questions or concerns about the use of AI in this course, please don't hesitate to reach out to me.

- Make sure you always cite and acknowledge AI-generated content properly.
- Prohibited Use Cases:
 - Using AI to complete assignments or projects without human critical analysis.
 - Relying solely on AI-generated content for research or analysis.
 - Presenting AI-generated content as original work without proper citation.

By following these guidelines, you will ensure that AI is used as a constructive and responsible tool to support your academic success.

Services for Students with Disabilities:

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. See the [“Get Started With the DRC”](#) webpage on the Disability Resource Center site. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Campus Helping Resources:

Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university’s counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

Whole Gator App:

The Whole Gator and website and app connects UF students with resources dedicated to supporting overall health and well-being. In addition to many of the resources below it also has strategies to practice self-care. <https://one.uf.edu/whole-gator/topics>

Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the [Student Health Care Center website](#).
- University Police Department: Visit [UF Police Department website](#) or call 352 392-1111 (or 9-1-1 for emergencies).

- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273- 4450.
- Student Success Initiative, <http://studentsuccess.ufl.edu>.

Academic Resources

- E-learning technical support: Contact the [UF Computing Help Desk](#) at 352-392 4357 or via e-mail at helpdesk@ufl.edu.
- [Career Connections Center](#): Reitz Union Suite 1300, 352-392- 1601. Career assistance and counseling services.
- [Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources. Call 866-281-6309 or email ask@ufl.libanswers.com for more information.
- [Teaching Center](#): 1317 Turlington Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring.
- [Writing Studio](#): Daytime (9:30am-3:30pm): 2215 Turlington Hall, 352-846-1138 | Evening (5:00pm-7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers.
- Academic Complaints: Office of the Ombuds; Visit the [Complaint Portal webpage](#) for more information.
- Enrollment Management Complaints (Registrar, Financial Aid, Admissions): [View the Student Complaint Procedure webpage for more information](#).

Student Complaints:

- Residential Course: <https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/> .
- Online Course: <https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complain>

Generic weekly schedule

Week	Topic
Week 1	Course Introduction and Chapter 1 <ul style="list-style-type: none">✓ Welcome – Course Introduction✓ Honor Code Acknowledgement✓ Plagiarism and RCR Certificate✓ Syllabus Quiz✓ Knowledge pretest quiz✓ Differentiating Research and Evidence-Based Practice✓ Group discussion 1✓ Week 1 quiz
Week 2	Chapter 2 <ul style="list-style-type: none">✓ Identifying and Refining Your Topic✓ Group discussion 2✓ Week 2 quiz
Week 3	Chapter 3 <ul style="list-style-type: none">✓ Completing a Comprehensive Literature Search✓ Week 3 quiz
Week 4	Chapter 4 <ul style="list-style-type: none">✓ Quantitative Research Design and Methods✓ Week 4 quiz
Week 5	Chapter 5 <ul style="list-style-type: none">✓ Quantitative Research: Technical Aspects and Data Analysis✓ Week 5 quiz

Week 6	<p>Chapter 6</p> <ul style="list-style-type: none"> ✓ Quantitative Research: Technical Aspects and Data Analysis ✓ Week 6 quiz
Week 7	<p>Chapter 7</p> <ul style="list-style-type: none"> ✓ Qualitative Research Design and Methods ✓ Week 7 quiz
Week 8	<p>Chapter 8</p> <ul style="list-style-type: none"> ✓ Qualitative Research: Technical Aspects and Data Analysis ✓ Group discussion 3 ✓ Week 8 quiz
Week 9	<p>Chapter 9</p> <ul style="list-style-type: none"> ✓ Critical Appraisal of Qualitative Research ✓ Week 9 quiz
Week 10	<p>Chapter 10</p> <ul style="list-style-type: none"> ✓ Critical Appraisal of Mixed Methods Research and Systematic Reviews ✓ Week 10 quiz
Week 11	<p>Chapter 11</p> <ul style="list-style-type: none"> ✓ Developing Your Inquiry Plan ✓ Week 11 quiz
Week 12	<p>Chapter 12</p> <ul style="list-style-type: none"> ✓ Protecting of Human Subjects or Participants ✓ Week 12 quiz

Week 13	<p>Chapter 13</p> <ul style="list-style-type: none"> ✓ Funding Your Inquiry ✓ Week 13 quiz ✓ Author Guidelines assignment & Discussion for paper
Week 14	<p>Chapter 14</p> <ul style="list-style-type: none"> ✓ Writing Up Your Inquiry Report ✓ Week 14 quiz ✓ Submit paper
Week 15	<p>Chapter 15</p> <ul style="list-style-type: none"> ✓ Presenting Your Inquiry ✓ Week 15 quiz ✓ Exam discussion
Week 16	<p>Chapter 16</p> <ul style="list-style-type: none"> ✓ Publishing Your Inquiry ✓ Week 16 quiz ✓ FINAL EXAM

This schedule is subject to change. Any change in the schedule will be announced in advance on the Canvas course site.