

University of Florida
GMS 66954 Assessing Effectiveness of Biomedical Science Teaching and Curricula
for the Biomedical Scientist as Educator Certificate (BSaE-C)
3 credits

REQUIRED TEXTBOOK

1. Selected readings from Fitzpatrick, J. L., Sanders, J. R., & Worthen, B. R. (2010). *Program evaluation: alternative approaches and practical guidelines*. 4th ed. New York: Longman.
2. Required readings as posted on the course Canvas website.

Materials and Supplies Fees

There are no additional fees for this course.

I. COURSE DESCRIPTION

This course provides an overview of models of evaluation within contrasting paradigms as it relates to biomedical science education. The **GMS 6XXX Assessing Effectiveness of Biomedical Science Teaching and Curricula** course for the Biomedical Scientist as Educator Certificate will provide field-based experience in for clinical translational researchers, an overview of the theory to practice connections and the potential for conference presentations and publication. Course topics will address: (a) stakeholder concerns, while adhering to the professional, scholarly and ethical roles that the evaluator is expected to uphold, (b) developing rubrics, (c) selecting appropriate assessments, and (d) using peer observations for the assessment of teaching methods, products and outcomes in clinics, laboratories, online learning and classrooms, as well as learning environments. Students will gain experience in writing a professional evaluation report and presentation skills. Working together in small groups or pairs, clinical translational science students will develop a proposal for an evaluation study, undertake a component of the proposed evaluation study, write and present related findings and add the evaluation study report to their Biomedical Scientist as Educator Certificate portfolio.

The **GMS 6954 Assessing Effectiveness of Biomedical Science Teaching and Curricula** course for the Biomedical Scientist as Educator course will be taught using the university's online learning platform, Canvas sponsored by the University of Florida to permit flexibility in the learning environment and to model online teaching for the prospective academician.

II. COURSE OBJECTIVES

Upon completion of this, students will be able to:

1. Explain the difference between evaluation and research in biomedical science education.
2. Identify examples of evaluation and research studies in biomedical science education.
3. Discuss the representative approaches to evaluation. Describe the

benefits/disadvantages of approaches to evaluation in biomedical science education

4. Select and justify a model of evaluation that is appropriate to conducting an evaluation project in biomedical science education.
5. Write evaluation questions that are appropriate to hypothetical and actual evaluation projects in biomedical science education.
6. Utilize data analyses that are appropriate to the focus of the evaluation study in biomedical science education.
7. Synthesize the literature and provide contextual background for the study in biomedical science education.
8. Complete assigned reflective writing prompts
9. Apply the theoretical concepts of educational evaluation in a practice-based evaluation study in biomedical science education.
10. Write a comprehensive evaluation report that demonstrates professional quality content and style.
11. Deliver an oral presentation of professional quality.
12. Communicate and collaborate effectively with classmates and the instructor in all phases of the course related experiences.
13. Write a 250-500 words entry in your biomedical science education portfolio that explains how you will use evaluation prospectively to study outcomes related to teaching, learning, instruction, or educational materials and products.

III. INSTRUCTIONAL FORMAT OF THE COURSE

Topics for sessions in this Biomedical Scientist as Educator course are listed in the syllabus. Presentations by the instructor will constitute a portion of the class time. Most of the class session time will be comprised of small group discussion and/or group work, consultations with the instructor, and presentations. Study guides have been prepared for selected textbook chapters to help biomedical science education students synthesize course materials efficiently and quickly so that you may begin to apply concepts to the evaluation project. Students are encouraged to complete the study guides since they will be used during small group learning experiences.

IV. PROFESSIONALISM, LEARNING ENVIRONMENT ETIQUETTE, AND STUDENT ACCOMMODATIONS

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Online Class Demeanor

Students are expected to be respectful to the instructor and to fellow students. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

Attendance policy

Completion of all online discussions and related course assignments will constitute attendance. Thus, attendance is subsumed by each of the graded assignments. Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation. Additional information can be found here: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

University Honesty Policy

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 Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions, please consult with the instructor.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

GUIDELINES FOR GROUP WORK

Because students will be assigned to work in small groups or pairs, it is important to develop a common understanding about the type of interactions and professional behavior that is expected. Although students will be encouraged to demonstrate professional interactions throughout the course, having a set of written guidelines may also be helpful in thinking about group interactions.

1. Group work reflects the real world; represents "our agenda", not "my agenda."
2. Identify the tasks you can commit to undertaking that allows you to contribute your best effort. For example, writing specific portions of the reports such as the abstract, the introduction, methods, results, discussion, and conclusion sections could be assigned. Developing tables, figures and the presentation, and conducting library research can also be assigned.
3. Consider individuals' needs such as non-course related or personal variables that influence work effort and, time commitment. Negotiate project tasks so that each individual can offer their best effort to the group.
4. Share responsibilities equitably; consider matching tasks to individuals' strengths and learning styles.
5. Listen and acknowledge others' points of view.
6. Be assertive - communicate and use language in a way that ensures that you will be understood. Be diplomatic, tactful, forthright, and say what you mean to say.
7. Talk honestly to each other.
8. Learn how to get along with each other and work harmoniously.
9. Be adaptive.
10. Edit your work carefully.
11. Fulfill your commitments to the group in a timely manner - - When group members have agreed to have components of the project completed for each other, be sure to have completed.
12. Provide each group member with a copy of the work that you prepare in electronic and hard copies. Each member should be informed about all aspects of the project to facilitate ownership and the analysis of data. Copies of the written work should be distributed to all groups members; it should not reside with only one member of the group.
13. Negotiate issues around quality. Each group member may have different needs and agendas concerning the final product as well as a different level of commitment to the evaluation project.
14. If you have to bring up sensitive issues, consider how you would feel if someone brought the same issue to your attention. Try to separate your feelings from actual experiences or observations. If you have difficulty at any time while interacting with group members or irresolvable conflicts, please consult the Instructor.

V. COURSE REQUIREMENTS AND EVALUATION OF STUDENT PERFORMANCE

- Contributions to discussion posts, which are responses to study guide questions - 10%
- Collaboration with group and contribution to the development of the group project – 20%
- Oral presentation of two selected chapters – 10% each
- Oral presentation of the evaluation project- 10%
- Written report of the evaluation project – 30%
- Completion of assigned reflective writing prompts – 10%

Contributions to discussion posts, which are responses to study guide questions - **10%**
Students will be expected to meet with small group/team meetings regularly and instructor and will be encouraged to demonstrate professionalism during interactions with all members of the learning community both within and outside of the learning environment.

Completion of assigned reflective writing prompts – 10%

Complete assigned reflective writing prompts and submit to instructor via CANVAS by midnight 2 days before the next scheduled session.

Oral presentation of two selected chapters – 10% each

While working in groups, students will make two (2) chapter presentations using Powerpoint or video. Please plan to follow-up your presentations with an application exercise. Use of a PowerPoint presentation and handouts is expected and will be reflected in the evaluation of this assignment. **Each group will post their presentations to the CANVAS website.**

Collaboration with group and contribution to development of the biomedical science educational evaluation project = 20%

Students will complete a brief self-evaluation report form to rate their contributions to the development of the group project. Please note that while the development of the written report is a group endeavor, the instructor reserves the right to assign grades as earned to individuals rather than to the group.

Oral presentation of the biomedical science educational evaluation project = 10%

Students will make an oral presentation to of their evaluation project. Presentations can last up to 45 minutes including time for questions from the audience. During presentation, students should be prepared to describe: the purpose of the evaluation, the significance and limitations of the project, efforts to ensure the reliability and validity of their findings, the findings, conclusions, and recommendations. Also, be sure to suggest ideas for future study. Use of PowerPoint or another multi-media platform is expected. Presentations should be of professional quality. Use of a PowerPoint presentation and handouts is expected and will be reflected in the evaluation of this assignment.

Written report of the biomedical science education evaluation project = 30%

When evaluating written products, the instructor will consider the: (a) quality of content (brevity, conciseness, accuracy, and scholarship); (b) correctness of grammar, spelling, and syntax and; (c) style, the development of ideas (depth and breadth), and (d) organization.

Grading Policy

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
81.0 - 83.9	B	3.00
78.0 - 80.9	B-	2.67
75.0 - 77.9	C+	2.33
72.0 - 74.9	C	2.00
69.0 - 71.9	C-	1.67
66.0 - 68.9	D+	1.33
63.0 - 65.9	D	1.00
60.0 - 62.9	D-	0.67
0 - 59.9	E	0.00

VII. COURSE SCHEDULE

WEEK # OF CLASS	SESSION TOPICS	COMPLETE FOR NEXT CLASS
1.	<p>Introduction to the course. Review Syllabus. Discuss evaluation project.</p>	<p>Read:</p> <ul style="list-style-type: none"> • Fitzpatrick, Sanders, & Worthen (FSW): Chapters 1 & 3. • Byars-Winston, et al. Career Development in Graduate Research Training <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online. • In 250-500 words, respond to the following prompts: <ol style="list-style-type: none"> 1. Describe one new fact or concept that you learned during this session. 2. Describe one question or concern that you have after viewing this session. 3. Describe something useful or practical that learned during this session that you can apply a biomedical scientist educator.
2.	<p>Fitzpatrick, Sanders, Worthen Chapters 1 & 3.</p>	<p>Read:</p> <ul style="list-style-type: none"> • FSW- Chapters 5 & 6. Rudolph- Debriefing: A Theory and Method for Debriefing with Good Judgment <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online.

WEEK # OF CLASS	SESSION TOPICS	COMPLETE FOR NEXT CLASS
3.	<p>Evaluation Project</p> <p>Fitzpatrick, Sanders, & Worthen: Chapters 5 & 6. Approaches to evaluation Part 1.</p>	<p>Read:</p> <ul style="list-style-type: none"> • FSW - Chapters 7 & 8. • Masic I. Ethical aspects and dilemmas of preparing, writing and publishing of the scientific papers in the biomedical journals. practice (GSP). 20121;8 (9):10-1 <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online. • In 250-500 words, respond to the following prompts: <ol style="list-style-type: none"> 1. Describe one new fact or concept that you learned during this session. 2. Describe one question or concern that you have after viewing this session. 3. Describe something useful or practical that learned during this session that you can apply as a biomedical scientist educator.
4.	<p>Fitzpatrick, Sanders, & Worthen: Chapters 7 & 8.</p> <p>Approaches to Evaluation. Part 2.</p>	<p>Read:</p> <ul style="list-style-type: none"> • FSW - Chapter 9 • Haustein: Tweeting Biomedicine: An Analysis of Tweets and Citations in the Biomedical Literature <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online.

WEEK # OF CLASS	SESSION TOPICS	COMPLETE FOR NEXT CLASS
5.	<p>Fitzpatrick, Sanders, & Worthen: Chapters 9</p> <p>Approaches to evaluation Part 2 Continued.</p>	<p>Read:</p> <ul style="list-style-type: none"> • FSW- Chapters 11 & 12. • Alberts: Rescuing US biomedical research from its systemic flaws • Dudo: Factors and processes that lead scientists to engage in public communication. <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online. • Group A prepares presentation of Chapter 11 and posts to CANVAS • Group B prepares presentation of Chapter 12 and posts to CANVAS. • In 250-500 words, respond to the following prompts: <ol style="list-style-type: none"> 1. Describe one new fact or concept that you learned during this session. 2. Describe one question or concern that you have after viewing this session. 3. Describe something useful or practical that learned during this session that you can apply as a biomedical scientist educator.
6.	<p>Fitzpatrick, Sanders, & Worthen: Chapters 11 & 12.</p> <p>View Groups A & B presentations.</p>	<p>Read:</p> <ul style="list-style-type: none"> • FSW - Chapters 13 & 14. • McLaughlin - Pharmacy student engagement, performance, and perception in a flipped satellite classroom (Am J Pharm Ed) <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online • Group A prepares presentation of Chapter 13 and posts to CANVAS. • Group B prepares presentation of Chapter 14 and posts to CANVAS.

WEEK # OF CLASS	SESSION TOPICS	COMPLETE FOR NEXT CLASS
7.	Fitzpatrick, Sanders, & Worthen Chapters 13 & 14. View Groups A & B presentations.	<p>Read:</p> <ul style="list-style-type: none"> • FSW - Chapters 15 & 16. • Estrada et al., - Incorporating interprofessional education into a veterinary medical curriculum. (J Vet Med Ed). <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online
8.	Fitzpatrick, Sanders, & Worthen: Chapters 15 & 16.	<p>Read:</p> <ul style="list-style-type: none"> • FSW - Chapters 17 • Myneni S, Patel VL, Bova GS, Wang J, Ackerman CF, Berlinicke CA, Chen SH, Lindvall M, Zack DJ. Resolving complex research data management issues in biomedical laboratories: Qualitative study of an industry–academia collaboration. Computer methods and programs in biomedicine. 2016 Apr 30;126:160-70. <p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online

VII. COURSE SCHEDULE, CON'T.

WEEK # OF CLASS	SESSION TOPICS	COMPLETE FOR NEXT CLASS
9.	Fitzpatrick, Sanders, & Worthen Chapters 17.	<p>Do:</p> <ul style="list-style-type: none"> • Complete study guides and post responses online • In 250-500 words, respond to the following prompts: <ol style="list-style-type: none"> 1. Describe one new fact or concept that you learned during this session. 2. Describe one question or concern that you have after viewing this session. 3. Describe something useful or practical that learned during this session that you can apply as a biomedical scientist educator.
10.	Work on class assignment.	
11.	Instructor-facilitated group work by appointment via zoom	
12.	Instructor-facilitated group work by appointment via zoom	
13.	Instructor-facilitated group work by appointment via zoom as needed otherwise ,the class assignment is GROUP WORK.	<p>Do:</p> <ul style="list-style-type: none"> • Work on final draft and oral presentation. <p>Reminders:</p> <ul style="list-style-type: none"> • Oral presentation of group report due next week. • Final evaluation reports due Week 15.

14.	Instructor-facilitated group work by appointment via zoom as needed Otherwise, the class assignment is GROUP WORK.	Reminders: <ul style="list-style-type: none">• Oral presentation of group report due next week.• Final evaluation reports due Week 15.
15.	Oral presentation of Evaluation report. Evaluation Report Due. Culminating experience.	<ul style="list-style-type: none">• Submit 2 electronic copies of final report to the instructor.• One copy will be returned, one will be maintained in the course library.

VIII. REFERENCES (Suggested Readings & Journal Titles)

American Journal of Evaluation: New Directions for Program Evaluation.

Bernard, H. R. (2000). *Social research methods*. Thousand Oaks, CA: Sage Publications, Inc.

Cousins, J.B. & Earl, L. M. (1995). *Participatory evaluation in education*. Bristol, PA: Falmer Press. Denzin, N. K., & Lincoln, Y. (Eds). (2000). *Handbook of qualitative research*. Second Edition. Thousand Oaks, CA: Sage Publications, Inc.

Educational Research & Evaluation

Evaluation Review

Greene, J. C., & Abma, T. A. (eds.). (2001). *Responsive evaluation: new directions for evaluation*, No. 92. San Francisco: Jossey Bass.

Journal of Personnel Evaluation in Education.

Patton, M. Q. (2002). *Qualitative research & evaluation methods*. Thousand Oaks, CA: Sage Publications.

Popham, W. J. (2008). *Transformative assessment*. Alexandria, VA: Association for Supervision and Curriculum Development.

Seigel, S. (1988). Choosing an appropriate statistical test. In *Nonparametric Statistics for the Behavioral Sciences*. Second Edition. New York: Macmillan.

Stufflebeam, D. L (2001). *Evaluation models. new directions for evaluation*, No. 89. San Francisco: Jossey Bass.

Studies in Educational Evaluation

Selected websites

www.epie.org - educational product information

STUDY GUIDES

Compiled by Dr. Linda Behar-Horenstein

Chapter 1

1. What is evaluation?
2. Describe some examples (other than those described in the course textbook) of how evaluation can be used in the following sectors: (a) classrooms or (b) laboratories.
3. What are the advantages/disadvantages of internal and external evaluations in biomedical science education?
4. List the benefits/limitations of evaluation in biomedical science education.
5. Is evaluation science or politics?

Chapter 3

1. Why is it important to become familiar with a variety of evaluation approaches in biomedical science education?
2. What practical implications emerge from the diversity of epistemological issues or methodological preferences of evaluation in biomedical research education? Consider how an objectivist and a subjectivist would approach doing an evaluation in biomedical science education.
3. Describe the difference between qualitative and quantitative inquiry in biomedical science education evaluation.
4. Identify a program of personal interest in biomedical science education that you would like to see evaluated. List some qualitative evaluation methods that you would use. List some quantitative evaluation methods that you would use. Would you propose to combine these methodologies? List 2-3 reasons why? or why not?

Chapter 5

1. Describe how aspects of the expertise-and consumer-oriented evaluation approaches might be useful in the biomedical science education evaluation project for this course.

Chapter 6

1. Describe how aspects of the program-oriented evaluation approaches might be useful in the biomedical science evaluation project for this course.

Chapter 7

1. Describe how aspects of the decision-oriented evaluation approaches might be useful in biomedical science education the evaluation project for this course.

Chapter 8

1. Describe how aspects of the participant-oriented evaluation approaches might be useful in the biomedical science education evaluation project for this course.

Chapter 9

1. Why is it cultural competence important in the context of conducting evaluations?

Chapters 11 & 12

1. What political or contextual factors will you (did you) consider when you

conducted the biomedical science education evaluation?

2. How do political or contextual factors impact the process of conducting/writing the biomedical science evaluation?
3. What is the object of your evaluation?

Chapters 13

1. Provide a response to each question on the matrix on page 331 regarding your evaluation questions.

Chapter 14

1. Respond to questions 1-3 on page 353.
2. In your opinion, who is the audience for the biomedical science education evaluation report? Who are the other audiences?
3. Create a sample management worksheet for your evaluation questions (see example on page 359).
4. Why is a contractual agreement between the biomedical science education evaluator and the stakeholder (client) essential? Identify what type of information should be articulated under the terms of the agreement.

Chapter 15

1. Consider how the design of your evaluation project design could become a mixed methods design, what additional information would be needed? How would the data collection process change and how would the analysis of the data be altered?
2. Assume that you have been contracted by the university to study the effectiveness of the graduate programs in the College of Medicine (or other health college of your choosing). You have been asked to interview current and former student in person and by telephone. What type of data will you collect, qualitative and/or quantitative? How will you report the findings?

Chapter 16

1. Describe the criteria and standards that were used in this biomedical science education evaluation project to determine its effectiveness.
2. Were these criteria sufficient? Why or Why not? Are there other criteria that might have been considered?
3. Describe the data sources used in your evaluation.

Chapter 17

1. Apply the checklist for good evaluation reports on pages 479 to your team's report.
2. What levels of influence do you anticipate that your evaluation report will serve (see page 484).
3. Identify your personal bias relative to your biomedical science education evaluation project.
4. Describe how you eliminated or minimized your personal bias as you analyzed the data and/or wrote the biomedical science education evaluation report.

Self-Evaluation of Contributions to Small Group Work

Please rate yourself on the following items where [4] = strongly agree, [3] = agree, [2] = disagree, and [1] = strongly disagree by selecting the number that best represents your opinion.

- | | |
|---|---------|
| 1. I listened to others' ideas about the evaluation project. | 1 2 3 4 |
| 1. When others contributed ideas to the project, I reflected on their usefulness. | 1 2 3 4 |
| 3. I came to all of the group's scheduled meetings. | 1 2 3 4 |
| 4. During group meetings, I contributed ideas about the evaluation project. | 1 2 3 4 |
| 5. I completed tasks in a timely manner for the group. | 1 2 3 4 |
| 6. I arrived at group meetings on time. | 1 2 3 4 |
| 7. I wrote at least one section of the evaluation report. | 1 2 3 4 |
| 8. I prepared at least one section of the oral | 1 2 3 4 |
| 9. I conducted literature research for the evaluation | 1 2 3 4 |
| 10. I was a presenter of the evaluation report. | 1 2 3 4 |

My most significant contribution(s) to the development of the written evaluation report were:

- proofreading and editing the report, _____
- conducting the analyses of the results, _____
- writing specific sections of the report such as, indicate which section(s) _____.

12. My most significant contribution to the development of the oral presentation of the evaluation report were e.g., indicate which of the following

- creating text slides for the PowerPoint presentation, _____
- creating tables or graphs, or other graphics for the PowerPoint presentation, _____
- Other _____

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus:

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>