

**Microbiology & Cell Science
(PhD) - Reviewer's Report -
Academic Data**

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Microbiology & Cell Science (PhD)

PhD in Microbiology and Cell Science Mission

Mission:

The mission of the Department of Microbiology and Cell Science at the University of Florida is to generate new knowledge in microbial, molecular, cellular, and computational biology and extend our knowledge to undergraduate and graduate students as well as the general public. We always strive to conduct competitive and state-of-the-art science in many of today's important biological problems. We pride ourselves in the diversity of our faculty, student body, and curriculum. Our curricula at the graduate and undergraduate levels are intended to prepare our students for positions in academia, biomedical sciences, industry, and government. We foster and encourage collaborations with other units at UF as well as with other scientists at many institutions around the world. The Microbiology and Cell Science graduate program supports the missions of the college and university to serve the nation's and state's critical needs by contributing to a well-qualified and broadly diverse citizenry, leadership and workforce through graduate education and to expand our understanding of the natural world, the intellect and the senses through graduate student research.

Program Type and Level: Research Doctorate**Start:** 07/01/2021**End:** 06/30/2022**Program:** Microbiology & Cell Science (PhD)**Program CIP:** 26.0503**Site Information:** On Campus (Residential)**If Other Site :****Responsible Roles:** Joel Brendemuhl (brendj@ufl.edu)

PG 1 Preparation of Independent Scientists

Goal:

Prepare students to function as independent scientists in the area of Microbiology and Cell Science and compete successfully with her/his peers in the global scientific community.

Program: Microbiology & Cell Science (PhD)**Evaluation Method:**

- Course work; departmental annual research symposium; seminars, committee meetings, and journal colloquy

Results:

- Students passed their required coursework
- Students attended departmental seminars and presented on a rotating basis (Appendix A)
- We canceled the 2021 Graduate Research Symposium due to COVID-19, but will continue with the annual symposium in the future
- Students participated in Journal Colloquy courses in the fall and spring semesters
- Students met with their supervisory committees at least once per year (Appendix C)

PG 2 State of the Art Knowledge

Goal:

Impart state of the art knowledge in the students' specific area of interest in Microbiology or Cell Science while also developing a strong knowledge base in areas outside their main focus area of dissertation research.

Program: Microbiology & Cell Science (PhD)**Evaluation Method:**

- Publications from students' research
- Written and oral presentations
- Supervisory committee meetings

Results:

- Our PhD students were authors/co-authors of numerous publications (Appendix B)
- Students attended seminars and presented their research on a rotating basis (Appendix A)
- We canceled the 2020 Graduate Research Symposium due to COVID-19, but will continue with the annual symposium in the future
- Students met with their supervisory committees at least once per year (Appendix C)

PG 3 Recruitment & Enrollment of Highly Competitive Students.**Goal:** Recruit and enroll highly competitive students.**Program:** Microbiology & Cell Science (PhD)**Evaluation Method:**

- Evaluation of the students' undergraduate experience that includes research as a significant component, in addition to performance in the classroom, strong letters from professors who know the student well, campus visit and interview

Results:

- Recruitment and enrollment data for 2021-2022 are provided Appendix D1.

SLO 1 Knowledge**Outcome:** Describe orally and in writing, the molecular genetic, biochemical and cellular basis of life**SLO Area (select one):** Knowledge (Grad)**Assessment Methods Checklist:** Faculty developed examination(s)/test(s)

Presentation(s)

Review by faculty outside the department

Assessment Method Narrative:**SLO Not Assessed This Year:****Threshold of Acceptability:** 80**How many students did you assess for this outcome?:**41 **How many students met the outcome?:** 41**What percentage of students met the outcome?:** 100**Does this meet your threshold of acceptability?:** Yes**Results:**

Program of Study evaluation (Appendix C)

What is the acceptable percentage of students who must achieve the outcome for you to consider the outcome to be met successfully for your program?	100%
How many students did you assess for this outcome?	15
How many students passed the assessment?	15
What percentage of students passed the assessment and met the outcome?	100%
Does this meet your threshold of acceptability?	Yes

Written qualifying examination (Appendix H)

What is the acceptable percentage of students who must achieve the outcome for you to consider the outcome to be met successfully for your program?	80%
How many students did you assess for this outcome?	9
How many students passed the assessment?	9
What percentage of students passed the assessment and met the outcome?	100%
Does this meet your threshold of acceptability?	Yes

Oral qualifying examination (Appendix H)

What is the acceptable percentage of students who must achieve the outcome for you to consider the outcome to be met successfully for your program?	80%
How many students did you assess for this outcome?	9
How many students passed the assessment?	9
What percentage of students passed the assessment and met the outcome?	100%
Does this meet your threshold of acceptability?	Yes

Dissertation defense (Appendix I)

What is the acceptable percentage of students who must achieve the outcome for you to consider the outcome to be met successfully for your program?	80%
How many students did you assess for this outcome?	8
How many students passed the assessment?	8
What percentage of students passed the assessment and met the outcome?	100%
Does this meet your threshold of acceptability?	Yes

All students are meeting the threshold of acceptability. These milestones keep our students on track for timely graduation.

SLO 2 Skills

Outcome:

Discuss orally and in writing, research methodologies for applying the scientific method to the generation of new knowledge

SLO Area (select one): Skills (Grad)

Assessment Methods Checklist: Faculty developed examination(s)/test(s)

- Presentation(s)
- Faculty Evaluation/Review
- Review by faculty outside the department

Assessment Method Narrative:

SLO Not Assessed This Year:

Threshold of Acceptability: 80

How many students did you assess for this outcome?:

26 **How many students met the outcome?:** 26

What percentage of students met the outcome?: 100

Does this meet your threshold of acceptability?: Yes

Results:

Written qualifying examination (Appendix H)

What is the acceptable percentage of students who must achieve the outcome for you to consider the outcome to be met successfully for your program?	80%
How many students did you assess for this outcome?	9
How many students passed the assessment?	9
What percentage of students passed the assessment and met the outcome?	100%
Does this meet your threshold of acceptability?	Yes

Oral qualifying examination (Appendix H)

What is the acceptable percentage of students who must achieve the outcome for you to consider the outcome to be met successfully for your program?	80%
How many students did you assess for this outcome?	9
How many students passed the assessment?	9

What percentage of students passed the assessment and met the outcome?	100%
Does this meet your threshold of acceptability?	Yes

Dissertation defense (Appendix I)

What is the acceptable percentage of students who must achieve the outcome for you to consider the outcome to be met successfully for your program?	80%
How many students did you assess for this outcome?	8
How many students passed the assessment?	8
What percentage of students passed the assessment and met the outcome?	100%
Does this meet your threshold of acceptability?	Yes

Students are successfully meeting the milestones throughout the program to stay on track for timely graduation. They are also successful in having their manuscripts published in peer-reviewed journals (Appendix B).

SLO 3 Professional Behavior

Outcome: Interact with professional peers with honesty, ethical behavior, cultural sensitivity, teamwork, and effective communication.

SLO Area (select one): Professional Behavior (Grad)

Assessment Methods Checklist: Faculty developed examination(s)/test(s)

Non-exam Course assignment(s)
Presentation(s)
Student Teaching
Review by faculty outside the department

Assessment Method Narrative:

SLO Not Assessed This Year:

Threshold of Acceptability: 100

How many students did you assess for this outcome?: 58

How many students met the outcome?: 58

What percentage of students met the outcome?: 100

Does this meet your threshold of acceptability?: Yes

Results:

Students in the program are meeting with their supervisory committees annually to ensure they are behaving ethically and exhibiting teamwork with their lab mates. They interact with professional peers throughout the seminar series (Appendix A).

Microbiology and Cell Science - PHD

Improvement Types Checklist: Other changes (please describe in your narrative)

Use of Results for Improvement Narrative - Required:

The department has hired new faculty and added coursework to the graduate program to attract highly qualified students and to train expert graduates

Student Learning Outcome #1: Describe orally and in writing, a thorough understanding of the molecular genetic, biochemical and cellular basis of life.

The students met the threshold of acceptability; thus, no action is needed.

Student Learning Outcome #2: Discuss orally and in writing, research methodologies for applying the scientific method to the generation of new knowledge.

- The students met the threshold of acceptability; thus, no action is needed.

Student Learning Outcome #3: Interact with professional peers with honesty, ethical behavior, cultural sensitivity, teamwork and effective communication.

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- The students met the threshold of acceptability; thus, no action is needed.

Student Learning Outcomes:

- Based on our review, we decided to maintain SLO 1 as originally conceived
- Based on our review, we decided to maintain SLO 2 as originally conceived
- Based on our review, we decided to maintain SLO 3 as originally conceived

It was also decided no changes were needed in our program goals.

All results were reviewed by the Student Services Coordinator, Graduate Coordinator, and Department Chair and then shared with faculty

Program Results Not Reported This Year:

Program Results Reporting Complete: true

PhD in Microbiology and Cell Science AAP Detail

Providing Department: Microbiology & Cell Science (PhD)

Assessment Cycle:

Assessment Cycle for:

Ph.D. in Microbiology and Cell Science

College of Agricultural and Life Sciences

Analysis and Interpretation:

May-June annually

Program Modifications:

Completed by September 1 of each year

Dissemination:

Completed by September 1 of each year

Year	20-21	21-22	22-23	23-24
SLOs				
Content Knowledge				
#1	X	X	X	X
Skills				
#2	X	X	X	X
Professional Behavior				
#3	X	X	X	X

SLO Assessment Rubric:**Assessment Oversight:**

Name	Department Affiliation	Email Address	Phone Number
Claudio Gonzalez	MCS	cfgonzalez@ufl.edu	352-273-8088
Nemat Keyhani	MCS	Keyhani@ufl.edu	352-392-2488
Peter Kima	MCS	pkima@ufl.edu	352-392-0384
Julie A. Maupin, Graduate Coordinator	MCS	jmaupin@ufl.edu	352-392-4095
Wayne Nicholson	MCS	wln@ufl.edu	321-261-3773
Kelly Rice	MCS	kcrice@ufl.edu	352-392-1192

Methods and Procedures - Undergraduate and All Certificate Programs:

Curriculum Map - Undergraduate Degree Programs:

Research :

Ph.D. students are involved in research activities throughout their studies, starting with attendance of our annual departmental research retreat, where new students meet faculty and other graduate students, attend talks and poster presentations and receive instructions on submitting research proposals and related topics. Students conduct research rotations in three laboratories in their first semester to help them to select a laboratory for their research. They begin their dissertation research projects in the second semester. The Ph.D. student conducts original research under the guidance of the major professor and a supervisory committee consisting of a minimum of five members, including the major professor, selected by the student in consultation with the major professor. Members of the supervisory committee for the Ph.D. degree must have Graduate Faculty status. One member, the official "external" member, of the committee must be selected from a department other than the Microbiology and Cell Science department and is also not an affiliate faculty of the Department of Microbiology and Cell Science. Graduate students interact with their major professor frequently, essentially daily, to discuss their research. Graduate students are expected to meet with their supervisory committee on a regular basis, at least annually, to assess their progress. Starting in the second year, graduate students are expected to present their research at least annually at departmental seminars and retreats. Degree completion requires that at least one manuscript, based on the student's research, shall be accepted for publication in a refereed scientific journal.

The student must present a departmental seminar of the dissertation research to be immediately followed by a closed oral defense administered by the individual supervisory committee. The style and format of the dissertation must adhere strictly with the rules and abbreviations described in "Instruction for Authors" published in the Journal of Bacteriology or another approved journal. At the student's option, reference citations within the text may be in the form of (author and date) rather than the usual reference number format. This will greatly facilitate changes, which may be suggested by the student's committee. If there is any conflict, the format, typing and positioning requirements of the Graduate School Guide take precedence over the journal specifications. A copy of the dissertation is to be provided to the department.

SLO Measures - Graduate and Professional Programs:

NOTE The individual rubrics used as measurement tools are shown in the Appendix.

SLOs are assessed on a continuing basis initially in the classroom and later in the research laboratory. Classroom assessment in various courses is reflected by the course grade. SLOs in the research laboratory are assessed by the student's major professor who is interacting with the student daily. In addition, achievement of SLOs is reflected in a seminar the student presents to the entire department on her/his research once a year. The student's performance in research and the ability to orally present and defend her/his research up to that point is evaluated by all the faculty members of the department during this time. The student also presents her/his research in a mini-symposium held just before the beginning of the Fall semester of each year and again the student's overall performance is evaluated by the faculty members of the department. These evaluations of the SLOs are used to track the progress of the student through the academic career both by the major professor and other faculty members of the department. The major professor addresses any concerns with the student and attempts to help the student overcome any limitation. The student's supervisory committee meets with the student at least once a year to further evaluate the student's progress in all three areas of SLOs. Before graduation, an exit seminar to the entire department and her/his defense of dissertation along with published manuscript(s) based on research or a yet to be published manuscript serves as the ultimate evaluation of the SLOs.

During the sixth semester of the student's residency in the program, the supervisory committee administers a comprehensive written examination. The student is expected to obtain a minimum of 75% in all sections of this examination. If the student does not obtain the minimum score in one or more sections of the examination, the student is required to obtain a combined average score of 75% in all sections before he/she is declared to have passed the written qualifying examination with the noted deficiency. The members of the supervisory committee address the deficiency during the oral part of the qualifying examination, which follows passage of the written exam. In addition, the student is required to provide the supervisory committee members with a written research proposal that may be related to her/his research topic of dissertation. The student is expected to defend this proposal during the oral part of the qualifying examination. A student who fails to pass the oral examination is allowed one opportunity to remediate. Upon passage of written and oral portions of the qualifying examination the student is admitted to candidacy for the Ph.D. degree.

The student's Program of Study is reviewed by the major professor and the supervisory committee to determine that all required coursework is included and to tailor the choice of elective courses to support the area of emphasis of the student's research project and career goals.

Evaluation of professional behavior is documented at the end of every semester in a written evaluation by the major professor and during the graduate committee meetings, which are held at least annually.

Evaluation of the student's knowledge of our field, research methodology and skills, and progress toward degree completion is formally assessed at least annually during committee meetings.

The dissertation defense provides the final opportunity for the supervisory committee to evaluate the student's understanding of molecular, genetic, biochemical and cellular bases of life and to document level of competence in research methodology and scientific written and oral communication.

Assessment Timeline - Graduate and Professional Programs:

Ph.D. in Microbiology and Cell Science

College of Agricultural and Life Sciences

Assessment	Program of Study Review	Qualifying Exam & Dissertation Defense	Annual Evaluation
SLOs			
Knowledge			
#1	X	X	X
Skills			
#2		X	X
Professional Behavior			
#3			X