

# Fall 2022 Undergraduate Program Director (UPD) Report

**Miranda Barnes** - Wed, Dec 14, 2022 2:08 PM

SEBS Governing Council

Received

## General Information

Your name

Miranda Barnes

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Major

Microbiology

Date of meeting

12/13/2022

Class year

2023

Undergraduate Program Director

Ines Rauschenbach

## UPD Phone

848-932-5635

## UPD Email

inesrau@rutgers.edu

## Major website link (if available)

<https://dbm.rutgers.edu/microbiology/>

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## Major Information

### Major Options - What options are offered within the major? How do they differ?

There are no distinct “tracks” offered for the Microbiology major; however, students are encouraged to customize their academic experience by picking and choosing topics that they are particularly interested in or that will help them in their intended post-graduation endeavors (with the help of an advisor if they are unsure). For example, a student who wants to pursue environmental microbiology might pick different electives than a student who plans to study infectious disease.

### Total number of students within the major (give an estimate from UPD if the exact number is unknown)

There are about 93 students in the major, 28 of which are graduating in Spring 2021.

### Goals within the major - What are expectations of students post-graduation?

1. Graduates will be able to illustrate and describe the biology of microorganisms, focusing on microbial processes and their effects on other organisms and the environment, microbial communities, and biogeochemical cycles.
2. Graduates will be able to apply the scientific method to formulate questions and hypotheses, design experiments, employ appropriate methodology to solve problems in microbiology, and be able to analyze, interpret, and present scientific data in microbiology.
3. Graduates will be able to critically evaluate scientific literature and explain their findings in written and oral format.
4. Graduates will be able to summarize ethical and current issues in microbiology and apply a code of ethics for microbiologists including ethical conduct, scientific integrity, and the dignity of the profession

and practice of microbiology. These program objectives are designed to prepare students to apply to graduate school, medical school, physician assistant training and medical technologist programs, or head straight into a laboratory position after graduation. Some students may take a gap year.

List 2-3 high-level major courses. What is the goal of each course? What should students be learning?

General Microbiology is the major gateway course to the major, introducing students to a variety of topics (including structure and function, genetics, ecology, diversity, and clinical microbiology) that they can then further explore in other elective coursework. This also includes a laboratory component designed to introduce students to the basics of working with microorganisms in a research environment. Applied Microbiology is the upper level microbiology course of the major and aims to teach students how they can utilize microbiological principles in diagnostics, treatment of disease, food and industrial fermentations, production of biofuels, and bioremediation. Many of these applications are explored directly in the laboratory. Microbial Physiology is a key course that students are advised to take towards the end of their undergraduate education as a way to review many of the principles emphasized in earlier core classes or electives. Pathways for the generation of core metabolites and a variety of respiratory modes are explored in significantly greater detail and serve to tie together core concepts introduced in previous coursework.

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## Student Issues

Are there any concerns/student issues with classes? Are there any suggestions for solutions to these issues?

Though there used to be a major GroupMe and Discord, they are at present mostly filled with alumni and not with current students. There is not much communication between older and younger majors (as far as I am able to tell) except the small subset that come to Microbiology Club meetings. It would be good to advertise platforms for the students to communicate with each other and maybe assign a student custodian (for example, whoever is representing the major in SGC or a board member in the club) to make sure the chats are up to date. As of right now, GroupMe seems to be preferred, but Discord has the advantage that “roles” can be assigned to different members (for example, channels exclusive to current students, alumni, courses, etc.), so some experimentation in both may be useful.

From the perspective of the UPD or faculty members, what could be improved upon in the major (anything, not just related to classes)? Are there any suggestions for solutions to these issues?

The program director would like to continue to offer more diverse electives and bring together the two halves of the department through a course that more explicitly explores the biochemical aspects of microbiology, something that is only touched upon in the General Biochemistry course required of current students. She would also like to offer a Medical Microbiology elective for those interested in infectious disease. Both Virology (11:126:407) and Comparative Virology (11:146:340) were offered in Fall 2021 through other departments at Rutgers University, their availability has been inconsistent in the past, making it difficult for microbiology students to add it to their schedules and thus limiting their ability to explore a crucial component of the discipline. Unfortunately, because these two classes do periodically appear in the course catalog, the university has been resistant to approving yet another virology elective for interested students. Additionally, the program director would like to improve communication via Canvas, organize more events to get microbiology majors to engage more, and is building department connections with alumni by updating her database of contacts through which past students can be solicited for donations and presentations.

### Things going on within the major (Visitors, Talks, Seminars within the major)

The department hosts a “Fermentation Club” showcasing invited speakers working in microbiology that undergraduates are more than welcome to attend if they’re available. There will also be a showcase for the major at Rutgers Day next spring.

### Suggestions for students in this major (ex: organizations to join, news to pay attention to)

G.H. Cook Biochemistry and Microbiology Club is the student organization most directly associated with the major and hosts a variety of events focused on professional development and networking among students, as well as fun activities themed around topics in the discipline. It meets every other Wednesday at 8 PM (currently in the Merle V. Adams Room of the Cook Student Center). However, students are encouraged to get involved wherever they can at Rutgers, even if it’s not related to the major, as a way to meet people and make connections.

### Changes within the major in the upcoming year?

There are no significant changes in the microbiology major planned in the coming year, but the website has recently been updated and restructured to make it more user-friendly to those looking for course requirements and research. There are also plans to add a page to the website highlighting alumni. Recruitment is always a major goal for the department, so initiatives related to drawing in more students will be ongoing and shaped by the return to largely in-person classes.

### Other Suggestions

Most people who join the major make the decision as sophomores after having tackled most of their general electives, so students joining later in their school career shouldn't worry that they didn't come into college wanting to be microbiology majors. Students both within and interested in the major should also always feel comfortable approaching Dr. Rauschenbach (Dr. R - undergraduate program director and advisor) with questions or concerns.

## Discussion

**P** Paula Agustin

Write a message

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## Reviewers



*There are no reviewers on this submission.*