

**APPLICATION FOR BA-MS-PhD PROGRAM  
IN BIOCHEMISTRY & CELL BIOLOGY**

***Please submit this completed information form, transcript, one page personal statement, and request two letters of recommendation to be sent to [susan.cates@rice.edu](mailto:susan.cates@rice.edu):***

Name \_\_\_\_\_ College \_\_\_\_\_

1. Indicate year at Rice:  Fr  So
2. Are you currently working in a laboratory? Where? Briefly describe your research program:
3. Provide a transcript and a one-page personal statement that indicates your interests, strengths, and aspirations, including why you are interested in BA/MS/PhD program.
4. Letters of recommendation from two individuals are required for this program. Please ask these individuals to send letters to [susan.cates@rice.edu](mailto:susan.cates@rice.edu). Provide the names and affiliations of these individuals below:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
5. I understand the requirements of this program, including research and coursework over the summers following sophomore, junior and senior years of study, and that the MS degree will be granted after the thesis defense held in the summer following graduation.

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Signature

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Date

**Schedule for application process:**

Application materials due: End of January (to request extension email, [mscates@rice.edu](mailto:mscates@rice.edu))  
Interviews with faculty: Scheduled during February  
Decision date: mid March



## Advising for the Combined BA-MS-PhD Accelerated Track in Biochemistry & Cell Biology

### Introduction

The BA-MS-PhD accelerated track is intended for talented students who are interested in an intensive research experience to prepare for a research career while working toward their Bachelor's degree and beyond. This track combines a Bachelor's program with advanced coursework and research toward a graduate degree. Students who successfully complete the requirements will receive a Master's degree the summer after completing their Bachelor's work. With departmental approval, these students can then enter the Biochemistry & Cell Biology (BCB) doctoral program in the Department of Biosciences.

This program is expected to be challenging for students who undertake it. Students considering the program should be aware of its merits and challenges.

### Merits

Immersion in an active research environment complementary to the student's interests, including paid summer research

Accelerated completion of a Master's degree in BCB

Potential accelerated completion of a PhD in BCB at Rice

May augment future advanced training, including study for PhD at another institution, MD/PhD training, research fellowships during medical school or residency, or international PhD programs that require a Master's degree for admission

### Challenges

Extensive time commitment – 2 or more summers of full-time research and additional course work will limit time for other activities (clinical shadowing/volunteering, study abroad, additional minors and majors)

No guarantee of completion – disqualifying conditions include, grades (<3.0 GPA), and thesis defense failure

### Advising resources

Departmental resources – engagement with Biosciences' undergraduate and graduate programs will provide access to formal and informal mentoring and advising opportunities

Research Mentor – A faculty member who supervises the student's research and provides regular feedback on their progress

Advising Committee – A faculty committee that will meet with the student 3 times during the program to advise and evaluate student progress (including the Master's defense)

## Frequently Asked Questions

### **Who should apply?**

The program is intended for students who want to be actively engaged in research during their undergraduate career. In particular, those who are interested in graduate school or MD-PhD programs are encouraged to speak with Dr. Susan Cates in the Biosciences office, GRB W100A ([susan.cates@rice.edu](mailto:susan.cates@rice.edu)) to begin the application process.

### **What is the process, and what are the requirements?**

The selection is made by the BA-MS-PhD in Biochemistry & Cell Biology Program Committee. Detailed information on requirements can be found at:

<https://ga.rice.edu/programs-study/departments-programs/natural-sciences/Biosciences/biochemistry-cell-biology-ba-ms-phd/>

### **Do I need to find a lab for my research or does the department find a lab for me?**

You are responsible for finding a lab that matches your research interest and a faculty member who is willing to mentor you through the BA/MS/PhD program. You are encouraged to begin working in a lab by the end of your freshman year or the during the summer before your sophomore year to ensure you can hit the ground running when you are admitted to the program.

### **How do I find a lab?**

Finding a lab to pursue your research program can be challenging. The BIOS 310 course materials contain excellent advice and resources.

### **What do I do during the summers?**

The program and your research mentor will support your summer research by providing a stipend while you are enrolled in summer research. The summer before your senior year you will also participate in a science-writing course, which help with writing graduate fellowship applications and writing your MS thesis.



### **When do I receive my degrees?**

Your BA will be awarded the semester you complete the requirements and apply for your degree. The MS will be conferred following completion of the degree requirements, including the Master's thesis defense, which will occur the summer or fall semester following receipt of your Bachelor's degree. Conferral of the PhD will follow additional research, course requirements, and successful defense of your PhD dissertation.

### **What if I am not accepted?**

Only a few slots are available. Don't be dismayed if you are not accepted — it is not a reflection of your perceived ability to perform research or succeed in science but rather a sign of limited resources. Please continue to take advantage of the research opportunities, seminars and other advantages of the Biosciences Department.

### **Can I do research off campus?**

Currently the scale of the program requires we limit participation to students pursuing research in Biosciences laboratories.

### **What if I change my mind later?**

You are under no obligation to continue in the combined BA-MS-PhD accelerated track. You can withdraw by notifying your research mentor, BA-MS-PhD committee, and Dr. Susan Cates.

## **Requirements for the BA-MS-PhD Degree Track in Biochemistry & Cell Biology**

Qualified Rice University undergraduate students can apply to enroll in the Biochemistry and Cell Biology BA-MS-PhD program track in the spring of their sophomore year. Students who are good candidates for this program typically join a Rice Biosciences research lab to start research on a biochemistry or cell biology related project prior to applying. Upon acceptance, depending on course load, financial aid status, and other variables, program participants may then start taking required graduate course requirements at the same time as their upper-level undergraduate degree course requirements. Students pursuing this track should be aware that there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

Laboratory research performed in 300, 400, and 800-level research courses is presented as the MS thesis in the summer following undergraduate graduation and can serve as the initial phases of the PhD thesis work. As a result, the graduate careers of these students will be accelerated by an anticipated 1-2 years, and such students may be able to obtain their PhD degrees approximately 3 years after obtaining their BA and MS degrees. Detailed information on this track may be found in the Graduate section of the General Announcements.

Criteria for selection include academic performance (GPA  $\geq 3.5$ ), motivation, previous research experience, and personal qualities. Enrollment is limited, and the Biochemistry and Cell Biology BA-MS-PhD Track Committee will select applicants for admission.

### **BA in Biochemistry and Cell Biology Requirements:**

All of the requirements for a BA in Biosciences with major concentration in either Biochemistry, in Cell Biology & Genetics, or in Integrative Biology, are required for the BA- MS-PhD track. Students who are graduating under the pre-2020 degree requirements for the BA in Biochemistry & Cell Biology must meet all of the requirements for that degree.

### **MS in Biochemistry and Cell Biology Requirements:**

The BA-MS-PhD Track Committee will advise students pursuing the BA-MS completion and will approve the formal course program of students during their final two years in the BA-MS program. Students who wish to pursue the BA-MS track must select the MS thesis advisor by the end of the sophomore year when they declare their major to provide the opportunity to begin a project that will form the basis of the MS thesis. For the MS, the following courses must be completed or evidence provided of successful completion of courses that covered the same material with a B- average (GPA  $\geq$  2.67):

- BIOS 581/582 *Graduate Research Seminar* [ 1 credit hour each ] (4 semesters attendance, 1 presentation)
- BIOS 583 *Molecular Interactions* [ 4 credit hours ]
- BIOS 587 *Research Design, Proposal Writing, and Professional Development* [ 3 credit hours ]
- BIOS 588 *Cellular Interactions* [ 4 credit hours ]
- UNIV 594 *Training in the Responsible Conduct of Research* [ 1 credit hour ]
- BIOS 800 *Graduate Research* [ 1-15 credit hours\* ]

\*A minimum of 40 credit hours at the graduate level is required for the MS degree.

### **Elective Requirements**

In addition to required courses listed above, students in the Biochemistry and Cell Biology BA-MS-PhD program must take at least six credit hours from the set of 500-level advanced BIOS electives. The full list of the 500-level Biochemistry & Cell Biology courses can be viewed in the Course Catalog.

Students in the BA-MS track are required to register for and participate in BIOS 581/582 both semesters during their junior and senior years and present their research at least once. Students generally enroll in BIOS 800 during the summer between the sophomore and junior year, BIOS 587 and BIOS 800 during the summer between the junior and senior years, and BIOS 583 and BIOS 588 in their senior year.

Students will be responsible for the content of these courses in their MS defense (which also serves as the Admission to PhD Candidacy examination).

Progress reviews with the MS thesis committee occur at the end of the junior year and the early spring of the senior year. The MS thesis will be submitted and public oral defense will occur in the summer following graduation at the end of the senior year with completion of the BA requirements. MS candidates continuing to the PhD must maintain a GPA  $\geq$  3.0, complete a thesis, and make a public oral defense that includes a private examination by their MS thesis committee. Students who complete the MS requirements with a GPA  $\geq$  2.67 but less than 3.0 must defend their thesis to complete the MS degree, but will not be admitted to the PhD program.

### **PhD in Biochemistry and Cell Biology:**

The following are required for admission to the PhD portion of the BA-MS-PhD track: Successful completion of the MS thesis and oral defense, which will serve as the admission to candidacy exam for all PhD candidates and a cumulative GPA  $\geq$  3.0 for the BA-MS degree courses. Students who are in good standing in the BA-MS track and have passed their MS final oral exam may begin their doctoral studies the summer following graduation with the approval of their PhD mentor and the Department Chair.

Course requirements for the first year of PhD study include:

- BIOS 581/582 *Graduate Research Seminar* (required in all semesters of residency)
- BIOS 599 *Graduate Teaching* (two semesters)
- BIOS 800 *Graduate Research*

### **Evaluation of Progress in the PhD Phase of the BA-MS-PhD Program:**

The Graduate Advising Committee evaluates each student's record and recommends any further course work based on the requirements and on the interests of the student. Thesis advisors may require additional courses. Students must maintain at least a B average (GPA  $\geq$  3.0), perform satisfactorily in their research efforts, and demonstrate outstanding motivation and potential for research. Evaluation during the PhD phase of the program includes:

- The MS thesis and its oral defense constitute the admission to candidacy examination
- Ongoing review of research progress by the thesis advisor; satisfactory research progress will be indicated by a grade of "S" in BIOS 800 each semester
- A yearly research progress assessment by the student's Research Progress Review Committee
- Presentation of research progress at least once a year in seminar format (BIOS 581/582) starting in the first year of PhD study and continuing until submission of the doctoral thesis
- Defense of the PhD thesis research and text in a final public seminar presentation and oral examination attended by the student's Thesis Committee