

APPLIED BIOTECHNOLOGY, M.S.

Every day, biotechnology is working to solve some of the world's most pressing problems—infectious and hereditary disease, food security, and sustainable alternatives to fossil fuels—and moving forward with revolutionary solutions.

Whether your experience is based in healthcare, agriculture, or industry—the online, 11-course, 31-credit University of Wisconsin Master of Science in Applied Biotechnology program will teach you how to bring the best of biotechnology innovation to the market, where it can do the most good.

- First, gain additional understanding of the principles and techniques of biotechnology, ethical, safety, and privacy concerns, funding, intellectual property and patents, professional and technical communication, experimental design and analysis, and organizational leadership—all within the scope of the global biotechnology industry.
- Then focus your learning within one or more specialization tracks: Quality Assurance and Compliance, Business Management, or Research and Development.
- Finally, upon completing your capstone project, you will earn a degree from the University of Wisconsin, one of the largest and most widely respected public higher education systems in the country.

The multi-campus partnership means you'll learn from expert faculty from across the UW System with strong connections to the industry, and the online format offers working adults like you a flexible, convenient way to pursue an advanced degree.

The **M.S. in Applied Biotechnology Program** is a FULLY ONLINE graduate degree program. If you are seeking the FACE-TO-FACE program, please see the M.S. in Biotechnology (<https://guide.wisc.edu/graduate/cell-regenerative-biology/biotechnology-ms/>) **Program**. You can also apply to both under one application fee.

Not sure which program best fits your needs? Contact us to talk more. Call 608-262-9753 or email Bryan (bthusk@wisc.edu) or Michele (michele.smith@wisc.edu).

ADMISSIONS

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website. Graduate admissions is a two-step process between academic programs and the Graduate School. **Applicants must meet** the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) **of the Graduate School as well as the program(s)**. Once you have researched the graduate program(s) you are interested in, apply online (<https://grad.wisc.edu/apply/>).

Requirements	Detail
Fall Deadline	July 15
Spring Deadline	December 15
Summer Deadline	April 15
GRE (Graduate Record Examinations)	Not required.

English Proficiency Test Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (<https://grad.wisc.edu/apply/requirements/#english-proficiency>).

Other Test(s) (e.g., GMAT, MCAT) n/a

Letters of Recommendation Required 2

APPLY TO THE GRADUATE SCHOOL

Applications are submitted online only; paper copy applications are not available. Apply to the Graduate School online and select the "Applied Biotechnology MS" program. This is the online-only degree program, see "Biotechnology, MS" program for the face-to-face degree.

THE GRADUATE SCHOOL'S ONLINE APPLICATION (HTTPS://APPLY.GRAD.WISC.EDU)

The online application and \$75 application fee must be submitted electronically to the Graduate School before you can be considered for admission. You are able to apply for up to three programs for the \$75 application fee.

ADMISSIONS CRITERIA AND PREREQUISITE COURSEWORK

- Bachelor's degree from an accredited university with a minimum grade point average of 3.0.
- Prerequisite coursework: **two semesters college-level lab coursework in biological sciences and/or chemistry, all of which must have a lab component**. To satisfy the prerequisite you must have completed either two semesters of biological sciences, two semesters of chemistry, or one semester each of biological sciences and chemistry.
- Professional resume or CV
- Unofficial transcripts. Upon acceptance, official transcripts will be required by the Graduate School.
- Two letters of recommendation (can be initiated and processed online via the Graduate School online application)
- A one- or two-page statement of purpose that is specific to the M.S. in Applied Biotechnology online degree (uploaded via the Graduate School online application) that provides the following:
 - *Summary of your professional and academic background*
 - *Concise description of your short- and long-term professional goals*
 - *Clear explanation of how the online M.S. in Applied Biotechnology degree will help you meet your goals.*

Additional Graduate School resources:

- Graduate School Admission Frequently Asked Questions (<https://grad.wisc.edu/apply/#FAQ>)
- Graduate School Admission Requirements (<https://grad.wisc.edu/admissions/requirements/>)

If you have any questions about how to apply or about the status of your application, you should contact Bryan Husk (<https://www.ms-biotech.wisc.edu/admissions.cfm#bryan>).

APPLICATION DEADLINE

Applications are accepted year round for the online M.S. in Applied Biotechnology Program. Students can begin in Fall, Spring or Summer term. To guarantee consideration for a particular term, applications should be completed by July 15 for Fall, December 15 for Spring, and April 15 for Summer.

ONLINE VERSUS FACE TO FACE

The "Applied Biotechnology MS" program is a fully online program. The "Biotechnology MS (<http://guide.wisc.edu/graduate/cell-regenerative-biology/biotechnology-ms/>)" program is face to face. Not sure which Biotechnology program works best for you? Contact the program (608.262.9753) for more information. You can also apply to both for one application fee.

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (<https://grad.wisc.edu/funding/>) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

PROGRAM RESOURCES

The M.S. in Applied Biotechnology Program does not offer any scholarships or financial aid. **Graduate students are not permitted to accept any research, project, or teaching assistantship positions that would waive tuition or provide tuition remission.** However, students may contact the Office of Student Financial Aid (<https://financialaid.wisc.edu/>) to discuss federal loan programs and other lending opportunities.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/#policiesandrequirements>), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
No	No	Yes	No	No

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students are able to complete a program with minimal disruptions to careers and other commitments.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirements Detail

Minimum Credit Requirement 31 credits

Minimum Residence Credit 31 credits

Minimum Graduate Coursework Requirement At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://registrar.wisc.edu/course-guide>) (<http://registrar.wisc.edu/course-guide/>).

Overall Graduate GPA Requirement 3.00 GPA required.

Other Grade Requirements The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

Assessments and Examinations n/a

Language Requirements n/a

COURSE REQUIREMENTS

Code	Title	Credits
The following core courses are required:		
ABT 700	Principles of Biotechnology	3
ABT 705	Ethics, Safety, and Regulatory Environments in Biotechnology	3
ABT 710	Professional and Technical Communication in Biotechnology	3
ABT 715	Techniques in Biotechnology	3
ABT 720	Experimental Design and Analysis in Biotechnology	3
ABT 725	Leadership in Organizations	3
ABT 789	Pre-Capstone	1
ABT 790	Capstone	3
Select a minimum of three classes (9 credits) from one or more of the following elective areas:		9

Area 1: Quality Control and Validation

ABT 735	Quality Control and Validation
ABT 740	Regulatory Practice and Compliance

ABT 745	Industrial Applications in Regulatory Affairs
<i>Area 2: Business and Management</i>	
ABT 750	Biotechnology Marketing and Entrepreneurship
ABT 755	Global Operations and Supply Chain Management
ABT 760	Quality and Project Management
<i>Area 3: Research and Development</i>	
ABT 765	Assessing Innovation in Biotechnology
ABT 770	Product Development
ABT 775	Tools for Data Analysis
Total Credits	31

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy/>) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

PRIOR COURSEWORK

Graduate Work from Other Institutions

No prior coursework from other institutions may be applied toward program requirements.

UW–Madison Undergraduate

No prior coursework from UW–Madison undergraduate career may be applied toward program requirements.

UW–Madison University Special

The M.S. in Applied Biotechnology Program may approve UW-Madison University Special students to enroll in specific M.S. in Applied Biotechnology courses. Only coursework specific to the M.S. in Applied Biotechnology Program may be applied toward program requirements. Special students must meet Graduate School requirements if they wish to apply to the M.S. in Applied Biotechnology Program and understand that all credits taken as a special student may be subject to a graduate tuition rate increase upon transfer into the graduate school and used toward degree completion.

PROBATION

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

Any incomplete work is expected to be completed and submitted within the next term even if the student is not taking additional classes for that term.

ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

Students will be advised by M.S. in Applied Biotechnology Program staff.

CREDITS PER TERM ALLOWED

15 credits

TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>)
- Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/#grievance-procedure>)
- Hostile and Intimidating Behavior Policies and Procedures (<https://hr.wisc.edu/hib/>)
 - Office of the Provost for Faculty and Staff Affairs (<https://facstaff.provost.wisc.edu/>)
- Dean of Students Office (<https://doso.students.wisc.edu/>) (for all students to seek grievance assistance and support)
- Employee Assistance (<http://www.eao.wisc.edu/>) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (<https://employee disabilities.wisc.edu/>) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (<https://grad.wisc.edu/>) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (<https://compliance.wisc.edu/>) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (<https://compliance.wisc.edu/titleix/>) (for concerns about discrimination)

Grievance Policy for Graduate Programs in the School of Medicine and Public Health

Any student in a School of Medicine and Public Health graduate program who feels that they have been treated unfairly in regards to educational decisions and/or outcomes or issues specific to the graduate program, including academic standing, progress to degree, professional activities, appropriate advising, and a program's community standards by a faculty member, staff member, postdoc, or student has the right to complain about the treatment and to receive a prompt hearing of the grievance

following these grievance procedures. Any student who discusses, inquiries about, or participates in the grievance procedure may do so openly and shall not be subject to intimidation, discipline, or retaliation because of such activity. Each program's grievance advisor is listed on the "Research" tab of the SMPH intranet (<https://intranet.med.wisc.edu/>).

Exclusions

This policy does not apply to employment-related issues for Graduate Assistants in TA, PA and/or RA appointments. Graduate Assistants will utilize the Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/>) (GAPP) grievance process to resolve employment-related issues.

This policy does not apply to instances when a graduate student wishes to report research misconduct. For such reports refer to the UW-Madison Policy for Reporting Research Misconduct for Graduate Students and Postdoctoral Research Associates (<https://research.wisc.edu/kb-article/?id=84924>).

Requirements for Programs

The School of Medicine and Public Health Office of Basic Research, Biotechnology and Graduate Studies requires that each graduate program designate a grievance advisor, who should be a tenured faculty member, and will request the name of the grievance advisor annually. The program director will serve as the alternate grievance advisor in the event that the grievance advisor is named in the grievance. The program must notify students of the grievance advisor, including posting the grievance advisor's name on the program's Guide page and handbook.

The grievance advisor or program director may be approached for possible grievances of all types. They will spearhead the grievance response process described below for issues specific to the graduate program, including but not limited to academic standing, progress to degree, professional activities, appropriate advising, and a program's community standards. They will ensure students are advised on reporting procedures for other types of possible grievances and are supported throughout the reporting process. Resources (<https://grad.wisc.edu/current-students/#reporting-incidents>) on identifying and reporting other issues have been compiled by the Graduate School.

Procedures

1. The student is advised to initiate a written record containing dates, times, persons, and description of activities, and to update this record while completing the procedures described below.
2. If the student is comfortable doing so, efforts should be made to resolve complaints informally between individuals before pursuing a formal grievance.
3. Should a satisfactory resolution not be achieved, the student should contact the program's grievance advisor or program director to discuss the complaint. The student may approach the grievance advisor or program director alone or with a UW-Madison faculty or staff member. The grievance advisor or program director should keep a record of contacts with regards to possible grievances. The first attempt is to help the student informally address the complaint prior to pursuing a formal grievance. The student is also encouraged to talk with their faculty advisor regarding concerns or difficulties.
4. If the issue is not resolved to the student's satisfaction, the student may submit a formal grievance to the grievance advisor

or program director in writing, within 60 calendar days from the date the grievant first became aware of, or should have become aware of with the exercise of reasonable diligence, the cause of the grievance. To the fullest extent possible, a grievance shall contain a clear and concise statement of the grievance and indicate the issue(s) involved, the relief sought, the date(s) the incident or violation took place, and any specific policy involved.

5. On receipt of a written grievance, the following steps will occur. The final step must be completed within 30 business days from the date the grievance was received. The program must store documentation of the grievance for seven years. Significant grievances that set a precedent may be stored indefinitely.
 - a. The grievance advisor or program director will convene a faculty committee composed of at least three members to manage the grievance. Any faculty member involved in the grievance or who feels that they cannot be impartial may not participate in the committee. Committee composition should reflect diverse viewpoints within the program.
 - b. The faculty committee, through the grievance advisor or program director, will obtain a written response from the person or persons toward whom the grievance is directed. The grievance advisor or program director will inform this person that their response will be shared with the student filing the grievance.
 - c. The grievance advisor or program director will share the response with the student filing the grievance.
 - d. The faculty committee will make a decision regarding the grievance. The committee's review shall be fair, impartial, and timely. The grievance advisor or program director will report on the action taken by the committee in writing to both the student and the person toward whom the grievance was directed.
6. If either party (the student or the person or persons toward whom the grievance is directed) is unsatisfied with the decision of the program's faculty committee, the party may file a written appeal to the SMPH senior associate dean for basic research, biotechnology and graduate studies within 10 business days from the date of notification of the program's faculty committee. The following steps will occur.
 - a. The grievant will be notified in writing, within 5 business days of the written appeal, acknowledging receipt of the formal appeal and establishing a timeline for the review to be completed.
 - b. The senior associate dean or their designee may request additional materials and/or arrange meetings with the grievant and/or others. If meetings occur, the senior associate dean or their designee will meet with both the grievant and the person or persons toward whom the grievance is directed.
 - c. The senior associate dean or their designee will assemble an ad hoc committee of faculty from outside of the student's graduate program and ask them to prepare a written recommendation on whether to uphold or reverse the decision of the program on the student's initial grievance. The committee may request additional materials and/or arrange meetings with the grievant and/or others. If meetings occur, the committee will meet with both the grievant and

the person or persons toward whom the grievance is directed.

- d. The senior associate dean or their designee will make a final decision within 20 business days of receipt of the committee's recommendation.
 - e. The SMPH Office of Basic Research, Biotechnology, and Graduate Studies must store documentation of the grievance for seven years. Grievances that set a precedent may be stored indefinitely.
7. The student may file an appeal of the School of Medicine and Public Health decision with the Graduate School. See the Grievances and Appeals section of the Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/documents/grievances-and-appeals/>).

Time Limits

Steps in the grievance procedures must be initiated and completed within the designated time periods except when modified by mutual consent. If the student fails to initiate the next step in the grievance procedure within the designated time period, the grievance will be considered resolved by the decision at the last completed step.

OTHER

The M.S. in Applied Biotechnology Program does not offer any scholarships or financial aid. **Graduate students are not permitted to accept any research, project, or teaching assistantship positions that would waive tuition or provide tuition remission.** However, students may contact the Office of Student Financial Aid to discuss federal loan programs and other lending opportunities.

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (<https://grad.wisc.edu/pd/>) to build skills, thrive academically, and launch your career.

LEARNING OUTCOMES

1. Demonstrate professional and scientific communication appropriate for biotechnology settings
2. Demonstrate comprehensive understanding of organizational processes and product development pipelines
3. Distinguish among diverse methods and technologies and their applications in biotechnology
4. Demonstrate strategic leadership and decision-making skills necessary in biotechnology
5. Appraise the current regulatory, quality control, and legal frameworks that impact biotechnology
6. Demonstrate professional and ethical behaviors that foster positive and productive interactions in diverse biotechnology settings

PEOPLE

The UW Applied Biotechnology curriculum is designed and taught in collaboration by faculty from seven University of Wisconsin campuses: UW–Green Bay, UW–Madison, UW–Oshkosh, UW–Parkside, UW–

Platteville, UW–Stevens Point, and UW–Whitewater. However, by selecting UW–Madison as your campus, your degree will come from UW–Madison.

James Keck, Ph.D.

- Associate Dean for Basic Sciences
- Professor, School of Medicine and Public Health

Natalie Betz, Ph.D.

- Academic director for the UW–Madison Applied Biotechnology program
- Associate Director for the M.S. in Biotechnology Program
- Faculty Instructor, School of Medicine and Public Health

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