

University of Wisconsin - Madison

**Biomedical Data Science
Graduate Handbook**



2021-2022

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Steering Committee

MS Steering Committee:

Guanhua Chen, Mark Craven (Chair/Program Director), Colin Dewey, Yin Li, Vikas Singh

PhD Steering Committee:

Mark Craven, Corrine Engelman (PHS), Ron Gangnon, Sündüz Keles, Michael Newton, Sushmita Roy (Chair/Program Director)

Arriving on Campus

To ensure a smooth start to your Graduate Career, upon arrival, students should review campus guidelines and complete the following tasks. <https://grad.wisc.edu/new-students/>

Activate your NetID

You will need your NetID and password to access the My UW-Madison portal at my.wisc.edu. To activate your NetID click on the ACTIVATE NETID button from the My UW Madison login screen. Enter your 10 digit student campus ID number and birthdate. The NetID you create and password you enter are keys to your access to the MyUW portal, so make a record of it and keep it private. If you are unsure about your NetID and password, contact the [DoIT Help Desk](#) at 608-264-4357.

Obtain a UW Photo ID Card (Wiscard)

Get your UW ID card - Wiscard - photo taken at the Wiscard Office (wiscard.wisc.edu/contact.html) in Union South, room 149, M-F 8:30 am - 5:00 pm. You must be enrolled and have valid identification, such as a valid driver's license, passport, or state ID) to get your photo ID.

Enroll in Classes

All PhD students will be advised by the program director for the first year unless they already have an advisor. MS students will be assigned advisors in the summer and should be available for correspondence in the weeks prior to registration. Contact graduate program coordinators Beth Bierman: bbierman@wisc.edu or Shelley Maxted: maxted@wisc.edu if you have any questions.

Pick up your free bus pass

As a UW student, you can pick up a bus pass at no charge from the Memorial Union at the beginning of the fall and spring semesters. Visit the ASM Web site for more information on Madison Metro bus services: <https://www.asm.wisc.edu/resources/buspass/>. Be sure to bring your UW Photo ID card. Prerequisite: You must be enrolled.

Verify Contact Information & Online Logins

Students should verify that they can log in to their [MyUW](#) account and confirm their mailing address and phone number; the campus information technology division, known as [DoIT](#), should be contacted through the [DoIT Help Desk](#) questions if students encounter any difficulties accessing MyUW.

Pay Tuition & Fees

Tuition is due the Friday before classes start. If you are unsure if you should pay tuition, please contact Shelley Maxted moxted@wisc.edu or Beth Bierman bbierman@wisc.edu. All students are required to pay their segregated fees on time or Questions can be directed and payments made to [the Bursar's Office](#) in person on **East Campus Mall** or online.

Check in with International Student Services (ISS)

International Students who are on a student scholar or visa ***MUST*** check in with [International Student Services](#) at the [Red Gym](#) **IMMEDIATELY UPON ARRIVAL.**

Attend the New Graduate Student Welcome Activities

This is a great opportunity to mingle with Graduate School deans and staff and meet current graduate students to learn about the many campus and community resources available to you.

Additional Information for International Students

International Student Services (ISS)

International Student Services (ISS) is your main resource on campus and has advisors who can assist you with visa, social and employment issues. Visit their website for more information at iss.wisc.edu or to schedule an appointment.

Mandatory Orientation

The U.S. Department of Homeland Security requires you to register with UW-Madison prior to starting your program of study in the United States. By completing the Immigration Check and attending International Student Orientation ([a mandatory orientation program for new students](#)), you will fulfill this obligation. Visit <https://iss.wisc.edu/orientation/#iso-steps> for more information, including orientation dates and registration steps.

Student Visas

Graduate Admissions issues the federal I-20 form for initial F-1 Visa procurement. Initial J-1 Visa document (DS-2019) is handled by [International Student Services](#) (ISS). The Graduate Admissions office sometimes must collect financial information for the DS-2019, which is then forwarded to ISS. After the student is enrolled, all Visa matters are handled by ISS.

Documents required of new international students

Many students are admitted with a condition that they submit their final academic documents after arrival on campus. Please submit your documents to the admissions office at 232 Bascom Hall. [Or departments may collect the documents and send them to the admissions office via campus mail.](#) The admissions requirements page <https://grad.wisc.edu/apply/requirements/> lists the documents required for each country.

Students with ESL requirements

Any student who was admitted with a TOEFL score below 92, or an IELTS score below 6.5 will be required to take the English as a Second Language Assessment Test (ESLAT) <https://esl.wisc.edu/international-students/placement/> and any required English course during their first semester. [Please consider this extra burden when considering admitting applicants with low English Proficiency scores.](#)

Funding for International Students

International students are eligible for Teaching, Project, and Research Assistantships on campus as well as university fellowships through the Graduate School. They may not be employed more than 20 hours per week on campus while enrolled full-time.

New international students with assistantships should work with International Students Services to obtain a social security number (iss.wisc.edu/employment/social-security/). New students with fellowships and no other appointment types are not considered employees and are not eligible for social security numbers. These students should work with ISS to obtain an International Taxpayer Identification Number (ITIN, <https://iss.wisc.edu/employment/individual-taxpayer-identification-number-itin/>).

Quick Links (Student Resources)

The links below are easy-to-access resources available to students in the Biomedical Data Science Program.

Calendars

[Checklist for All New Graduate Students](#)

The Graduate School provides an online Important Checklist for new and international students. It also provides a schedule of events during Welcome Week.

[Academic Calendar](#)

Start and end dates, holidays, and exam dates for academic terms across campus

[Enrollment Deadlines & Tuition Payment](#)

Information from the Office of the Registrar regarding when students can adjust their scheduled courses; tuition due dates and payments can be made through the [Bursar's Office](#)

[Doctoral Degree Deadlines & MS Degree Deadlines](#)

List of dates that students requesting final warrants and preparing for graduation should observe

[Commencement](#)

The university's official site for all information concerning upcoming graduation ceremonies

Campus & Academic Life

[UW-Madison Guide to Campus Life](#)

The university's complete compilation of student resources and opportunities; including student organizations, diversity on campus, events, health and wellbeing, and life in Madison

[Graduate School Academic Policies and Procedures](#)

The Graduate School's expectations for student conduct, academic achievement, and degree-earning efforts

[International Student Services \(ISS\)](#)

A resource for international students searching for programs in the Madison community and assistance related to visas and immigration

Computers

[Biomedical Computing Group \(BCG\)](#)

The technology resource for computers and software specific to the Department of Biostatistics and Medical Informatics

[DoIT \(Division of Information Technology\)](#)

The university's main provider of technological assistance, products, and education

Diversity

[Office for Equity and Diversity \(OED\)](#)

The university's office for the promotion, integration, and transfer of equity and diversity values to campus

Health & Wellness

[University Health Services](#)

The university's provider of student physical and mental health services and education

[McBurney Disability Resource Center](#)

A resource for students who have a documented disability or suspect that they may have an undiagnosed disability to obtain academic accommodations

[SilverCloud - University Health Services](#)

SilverCloud is an online, self-guided, interactive mental health resource that provides UW-Madison students with accessible treatment options 24 hours a day

Learning Resources & Assistance

[The Writing Center](#)

A campus-wide organization that provides free of charge, face-to-face and online consultations for students writing papers, reports, resumes, and applications

[Accessibility](#)

A resource coordinated by the campus Americans with Disabilities Act (ADA) Coordinator providing information on facilities and physical access, academic services, libraries, employment and ADA Campus Policies.



The Biomedical Data Science Graduate Program

What is Biomedical Data Science?

Data science is the combined use of tools and concepts from statistics and computer science for gathering, integrating, analyzing, interpreting, and visualizing data for scientific inquiry and decision-making. In addition to those two core disciplines, data science incorporates case studies, methods, theory, and principles from other fields including systems engineering, human-centered design, and information sciences. Biomedical Data Science is focused on the quantitative and computational aspects of generating and using data to further biomedical research, broadly construed.

Biomedical Data Science includes techniques such as machine learning and data mining, optimization, theory of data structures, formal study design methods for biomedical research, and formal statistical principles for quantifying uncertainty and making inferences. Recent growth in the size and complexity of data arising in biology, medicine, and public health—including applications in high throughput biology, medical image analysis, clinical and health services research, and genetics and genomics—requires continued research and training in the separate disciplines of statistics and computer science, and, their synthesis.

Program Vision

The MS and PhD degree programs in Biomedical Data Science takes a broad view in terms of the range and scale of biomedical problems being addressed, and also in terms of the quantitative and computational methodologies being covered.

As such, the program has several objectives:

- Train all students in a common core curriculum covering the breadth of challenges, scales and methods in Biomedical Data Science.
- Offer students a curriculum covering the spectrum from analyzing molecular-level data to analyzing populations of individuals in pursuit of biomedical research and novel clinical processes.
- Offer students a curriculum featuring rigorous training in a range of methods, including but not limited to: artificial intelligence (including computer vision, machine learning, natural language processing), databases, human-computer interaction, optimization, and security, mathematical statistics and inference, statistical computing, and regression methods.
- Impart to students a fundamental knowledge of, and competence in, computer science, statistics, and the biomedical sciences.

Produce students who are professionals capable of independent thinking, of bringing novel strategies and new ideas to their professional work environment, and of becoming leaders in healthcare, academia and industry.

Advising

Advisor / Advisee Roles

Advisor:

The advisor serves a dual role: first, to assist the student in acquiring the highest level of knowledge and competence in the field that is possible; and second, to chair the committee that will determine whether the student has performed acceptably at each of his/ her degree milestones. The chair or co-chair of the committee must be Graduate Faculty from the student's program. Advisors may often play a role in tracking the student's progress toward degree completion, assisting with course selection and academic planning, and helping students identify possible research mentors, committee members, and opportunities.

Advisee:

Since the advisor's role can vary, students should discuss roles and expectations with their advisors or prospective advisors.

Both the student and the advisor have a responsibility to make their expectations clear to each other.

MS Advisor:

An initial steering committee member will be assigned as an advisor to each student upon entry in to the program. Student and advisor will connect either by email, phone, or in person and discuss class options, allowing the student to register for classes in June.

Meetings:

Students will meet with their advisor to create a plan for coursework, following the MS requirements and student interest area.

PhD Advisor: PhD students are assigned an initial academic advisor upon entry to the program; students have the option to change advisor, and should identify a permanent research advisor by the end of rotations.

Meetings:

Students should meet with their academic advisor at least once a semester to select courses. At the start of the second year, they should have identified a permanent research advisor and work with them to identify a thesis committee. Students should meet with their thesis committee at least once each year.

Additional Advising Contacts:

Students should reference the program's website, the handbook, the Graduate School's website (<https://grad.wisc.edu/>) and the Graduate School's Academic Guidelines (<https://grad.wisc.edu/academic-policies/>) for answers on various program-related questions. Students should contact the Graduate Program Coordinators Shelley Maxted (maxted@wisc.edu) or Beth Bierman (bbierman@wisc.edu) with questions. They can provide guidance on issues including satisfactory academic progress, academic deadlines, graduation completion, program-related forms, advising/course holds and permissions, and course offerings.

Changing Degree Levels:

Some students who begin working toward a Ph.D., may switch to an M.S. degree. Conversely, some students, who plan to complete only an M.S. degree, may apply to the Ph.D. These decisions must be made with the support of their faculty advisor. Requests are made through MyGradPortal **NOT** through Applicant Review.

International Students must also inform the [International Student Services Office](#) as soon as they decide to change their degree level by completing the appropriate Application Form found here: <https://iss.wisc.edu/applications-and-forms/>

Professional Development and Career Planning

UW-Madison offers a wealth of resources intended to enrich your graduate studies and enhance your professional skills. It is expected that you will take full advantage of the resources that best fit your needs and support your career goals. By actively participating in these professional development opportunities, you will build the skills needed to succeed academically at UW-Madison and to thrive professionally in your chosen career.

The **Graduate School Office of Professional Development and Engagement (OPDE)** provides direct programming in the areas of career development and skill building, and also serves as a clearing house for professional development resources across campus. The best way to stay informed is to watch for the weekly newsletter from OPDE, **GradConnections**, and to visit the webpage <https://grad.wisc.edu/pd/> for an up-to-date list of events. For example, typical topics covered throughout the year are:

- Planning for academic success
- Communication skills
- Grant writing
- Teaching
- Mentoring
- Research ethics
- Community engagement
- Entrepreneurship
- Career exploration: academic, non-profit, industry, government, etc.
- Job search support
- Pursuing postdoctoral training

Be sure to keep a pulse on programs offered by the following campus services as well.

- Writing Center <http://www.writing.wisc.edu/>
- Grants Information Collection <http://grants.library.wisc.edu/>
- Delta Program <http://www.delta.wisc.edu>
- Morgridge Entrepreneurial Bootcamp <https://wsb.wisc.edu/programs-degrees/programs-nonbusiness-majors/morgridge-entrepreneurial-bootcamp>
- The American Family Insurance Data Science Institute (DSI) <https://datascience.wisc.edu/institute/>

Individual Development Plan

The Individual Development Plan (IDP) is an essential tool to help:

- 1) Assess skills and strengths
- 2) Make a plan for developing skills to aid with academic and professional goals
- 3) Communicate with advisors and mentors about evolving goals and related skills.

UW-Madison IDP Policy:

IDPs are required for graduate students and postdocs with NIH funding, and recommended for all graduate students and postdocs regardless of funding source.

Get started here: <https://grad.wisc.edu/professional-development/>

Set up a free account and create and monitor your IDP at <http://myidp.sciencecareers.org>.

Enrollment

Course registration occurs online through the [Course Search and Enroll App](#).

The Graduate School policy indicates the minimum enrollment requirements each semester:

<https://grad.wisc.edu/documents/enrollment-requirements/>

Full-Time Graduate Student Enrollment Guide at a Glance

	Fall & Spring Semester	Summer Session
RA, non-dissertator	8-15 Credits	2 Credits
TA, non-dissertator	6 Credits (33.33%) 4 Credits (50%)	2 Credits
Dissertator	EXACTLY 3 Credits	EXACTLY 3 Credits
Fellow or Trainee	8-15 Credits	2 Credits
International Students (F-1/J-1)	8-15 Credit	2 Credits with RA/TA/PA Appt.

Enrollment Deadlines

It is **your** responsibility as a student to be aware of enrollment deadlines each term. Deadlines found here: <https://registrar.wisc.edu/sessiondates/>

Master's Program

Coursework Requirements

The program requires that students complete a total of 31 credits. There are four required components: 1) 12 credits of core courses; 2) 12 credits of data science electives; 3) a research ethics course; and 4) a research project. Between core courses and data science electives, students must complete 6 credits of computer science oriented courses and 6 credits of statistics oriented courses.

Students must maintain a minimum 3.0 GPA and earn a grade of B or better for each of the core courses. A student who receives a grade below a B in a core course must repeat the course unless an exception has been approved by the Steering Committee upon the recommendation of the student's advisor.

Concentration Electives (12 credits)

Students will start with four core courses designed to present the essential concepts in the field and provide a base level of knowledge. Occasionally

ISYE 517	Decision Making in Health Care
BMI/STAT 541 or BMI/POP HLTH 551 or STAT/FEW/HORT 571	Introduction to Biostatistics Introduction to Biostatistics for Population Health Statistical Methods for Bioscience I
BMI/POP HLTH 552	Regression Methods for Population Health
BMI/CS 567	Medical Image Analysis
STAT/FEW/HORT BMI 572	Statistical Methods for Bioscience II
BMI 573	Foundations of Data-Driven Healthcare
BMI/CS 576	Introduction to Bioinformatics
BMI/BIOCHEM/BMOLCHEM/MATH 609	Mathematical Methods for Systems Biology
ISYE/BMI 617	Health Information Systems
BMI/STAT 641	Statistical Methods for Clinical Trials
BMI/STAT 642	Statistical Methods for Epidemiology
BMI/POP HLTH 651	Advanced Regression Methods for Population Health
BMI/STAT 741	Survival Analysis Theory and Methods
BMI/CS 767	Computational Methods for Medical Image Analysis
BMI/STAT 768	Statistical Methods for Medical Image Analysis
BMI 773	Clinical Research Informatics
BMI/CS 776	Advanced Bioinformatics
BMI 826 023	Computational Network Biology
BMI/STAT 877	Statistical Methods for Molecular Biology

Data Science Electives (12 credits)

In consultation with their faculty advisor, students will select two courses as electives in computer science and/or statistics. Coursework of high relevance includes the following areas:

STAT 609	Mathematical Statistics I
STAT 610	Introduction to Statistical Inference
STAT 627	Professional Skills in Data Science
STAT 771	Statistical Computing
STAT 849	Theory and Application of Regression and Analysis of Variance I
STAT 850	Theory and Application of Regression and Analysis of Variance II
CS 540	Introduction to Artificial Intelligence
CS 545	Natural Language and Computing
CS 642	Introduction to Information Security
CS 564	Database management Systems: Design and Implementation
CS 570	Introduction to Human-Computer Interaction
CS 577	Introduction to Algorithms
CS 760	Machine Learning
CS 761	Mathematical Foundations of Machine Learning
CS 764	Topic in Database Management Systems
CS 766	Computer Vision
CS 769	Advanced Natural Language Processing
CS 787	Advanced Algorithms
CS/EDPSYCH/PSYCH 770	Human-Computer Interaction
CS/ISYE/MATH 425	Introduction to Combinatorial Optimization
CS/ISYE/MATH/STAT 525	Linear Optimization
CS/ISYE 635	Tools and Environments for Optimization

Research Ethics (1cr)

BMI 826 (section 038)

Research Credits (3-6cr)

BMI 699

Electives (0-3cr)

PhD Program

Coursework Requirements

A total of 51 credits are required: the 34 course credits from Core Topics, Breadth Requirements, and Additional Program Requirements. The remaining credits can be a combination of further elective courses and research credits. Students must maintain a 3.0 GPA and earn a grade of B or better for each of the core courses. A student who receives a grade below a B in a core course must repeat the course unless an exception has been approved by the Steering Committee upon the recommendation of the student's advisor.

Core Topics: Three year-long course sequences will be selected from a set of core topics, including one biostatistics sequence (topics 1-2) and one computer science/informatics sequence (topics 3-6). The third sequence can be selected from any of the listed topics (topics 1-11).

Core Course Topic Areas : Select one topic from each of the 3 areas		
Biostatistics : (6-8cr)	Computer Science & Informatics : (6-7cr)	Additional Specializations: Select one from topics 1-11 (6-8cr)
Topic 1: Biostat Theory & Methods: STAT 609 & STAT 610	Topic 3: Machine Learning / ai: CS 540 & CS 760	Topic 7: Clinical Informatics: ISYE 417 & BMI/ISYE 617
Topic 2: Biostat Methods: STAT 849 & STAT 850	Topic 4: Database Systems: CS 564 & CS 764	Topic 8: Clinical Biostatistics: BMI/STAT 641 & BMI/STAT 642
	Topic 5: Optimization : CS 525 & CS/ISYE/MATH/STAT 726	Topic 9: Statistical Computing (select 2): STAT 627; STAT 771; STAT/ECON/GEN BUS 775
	Topic 6: Algorithms: CS 577 & CS 787	Topic 10: Bioinformatics / Statistical Genomics (select 2): BMI/CS 576; BMI 776; BMI/STAT 877
		Topic 11: Biomedical Image Analysis (select 2): CS 765; CS 766; BMI/CS 767; BMI/STAT 768

Additional Coursework Requirements:

Research Ethics (1cr)

BMI 826 (section 038)

Scholarly Literature (4cr)

BMI 881 & BMI 882 taken during the second year

Professional Skills (2cr)

BMI 883 & BMI 884 taken during the third year

Biology coursework (6cr)

Advanced Biology coursework, selected in consultation with advisor

Research credit (6cr+)

BMI 899

Additional electives (0-6cr)

selected in consultation with advisor

Research Rotations

Purpose

Research rotations are an important aspect of training in Biomedical Data Sciences. They engage students in active research projects over a short time period (one semester) and may involve a variety of research tasks from computational, statistical, or biomedical sciences. This is also one of the major ways by which students select a lab for their PhD work.

Procedure

1. Three rotations need to be completed in the first year, one each semester and one during the summer. If a student has made other arrangements for the summer (e.g. an internship), then it is possible to complete the third rotation in the following year.
2. The rotation will end with a presentation at the end of the semester.
3. Process of matching students with rotation mentor.
 - a. Faculty send projects to the program coordinator (Shelley Maxted) who shares with students. Alternately, if a faculty member and student have planned a project before the matching process for the semester, the faculty member should just indicate this to the PhD program director (Sushmita Roy) and coordinator.
 - b. Students select their rotation projects and contact the faculty member directly whose project they are interested in.
 - c. The program director or coordinator can provide any guidance to the student/faculty as needed.

Guidelines

Below are some strategies to maximize the rotation experience. The overarching goal is for mentors and mentees to effectively evaluate their compatibility. *These are only suggestions, and not directives for how PIs must configure or evaluate rotations.* These have been adapted from guidelines developed for the Molecular and Environmental Toxicology graduate program.

Suggestions for mentors of rotating students:

1. Articulate to students that the main goal of rotations is to ensure that you and student have sufficient resources to make an informed match.
2. Faculty are encouraged to define projects that are collaborative/interdisciplinary in nature. For example, carving out a project from a problem you might be working with a collaborator in our or another department.
3. Communicate with rotators frequently and schedule frequent meetings (e.g. weekly). Be available for questions.
4. Establish clear expectations and articulate them before the rotation begins.
5. Structure opportunities for rotating students to interact with other lab members, e.g, via lab meetings, journal clubs, informal get-togethers to enable your team members to interact with rotating students.

6. Plan an evaluation session for the last week of the rotation.
7. Discuss social distancing, maximum occupancy, occupancy times, and other policies related to COVID restart policies for your lab. Note that these may differ across labs and buildings, do not assume your rotator knows the rules for your school/building/lab.

Suggestions for rotating students:

Your major professor / advisor is going to play a critical role for you, not only during your time in graduate school, but for the rest of your life. Finding a major professor with a compatible mentoring style is critical for your success. We provide suggestions to maximize your experience:

1. Rotations should be planned and executed with the health and safety of the student in mind and accommodations made accordingly.
2. Understand that the main goal of rotations is to ensure that you and the PI can make an informed match.
3. Begin rotations by meeting with mentors and discussing expectations.
4. Find opportunities to interact with your mentors – schedule formal meetings.
5. Establish weekly goals and report them to your mentor at the beginning of each week.
6. Report your progress on research goals at the end of each week (written progress reports or in person or virtual meetings are effective ways to report progress).
7. Don't be afraid to ask questions, but also put in effort to find answers independently.
8. Find opportunities to practice writing (weekly lab reports, reviews of manuscripts, etc.) so that you can work with your PI to critically evaluate and improve writing.
9. Read recent papers from your rotating mentor's research group and the related field. Formulate questions and potential research directions, write them down, share and discuss them with your mentor. You will spend a lot of time writing with your mentor, and your rotation is a great opportunity to evaluate your compatibility.
10. Meet with your mentor at the end of the rotation to evaluate your performance and receive suggestions for improvement.
11. Ensure that you are aware of relevant social distancing, maximum occupancy, occupancy times, and other policies related to COVID restart policies for your rotating lab. Note that these are not the same for all labs, so please ask questions.

Preliminary Exam

The preliminary exam is a major milestone towards the PhD. After successfully passing the prelim exam the student becomes a dissertator. This exam is typically taken in the third year of a student's study and after the core program requirements are completed. Prior to taking the preliminary exam, the student together with their advisor will form a PhD committee (See section below). The oral preliminary exam has two parts, a written document describing the research direction that will be pursued during the student's PhD, and an oral presentation.

Written document

This document is expected to be 15-20 pages (excluding references) and should be shared with the PhD committee at least 1 week in advance of the oral presentation. Please use 1 inch margins, with no less than 11 point font. The goal of this document is to provide the committee a description of the proposed dissertation work. This document should provide background of the primary research area, major goals of the dissertation work and any preliminary work that provides the basis of the proposed work.

A good but not required format for this document is the NIH or NSF research proposal with the following sections: Specific Aims (1 page), Background & Significance (~1.5 page), Innovation (1/2-3/4 page), Preliminary Work (~3 pages), Approach (7-8). The specific aims page, should be ~1 page long, should introduce the research area and the key problem(s) the PhD research will undertake. There should be 2-3 aims describing the proposed work. The Background & Significance section should build on the primary literature review of existing work and highlight the key gaps that exist in the specific field that would be addressed by the proposed research. The Innovation section should present the novelty of the proposed work. The Preliminary Work section should provide the foundation and present the feasibility of the proposed work. Often a published paper is a good body of work to present as preliminary work. The Approach will describe how the proposed work will be carried out. This section would be broken down into the aims and for each aim, should provide the expected results and products (e.g. algorithms, software etc).

Oral exam

The oral exam should be planned for at least 2 hours and has three parts. The first is an open, public presentation where other members of the department can attend (~45 mins). The second is a closed meeting with just the student and committee. The third is a meeting among the committee members without the student in which the faculty make a pass/fail decision of the exam. The public part of the meeting should include a 20-30 min presentation by the student followed by questions from the audience. The second part of the meeting is for additional in-depth questioning about the approach and proposed research plan. In the third part, the committee will make a pass/fail decision for the student. At the end of this meeting, the student will be asked to rejoin the meeting and the chair of the committee will convey the decision along with the major strengths and areas to improve on the proposed work. It is ultimately up to the student's advisor to determine which aspects of the feedback should be strictly followed. A student has two attempts to successfully pass the preliminary exam.

PhD committee

The committee should follow the PhD dissertation/oral exam committee policy provided by the graduate school (<https://policy.wisc.edu/library/UW-1201>). It should include at least four faculty members of which at least three members should be BDS program faculty and one member comes from a different UW department or program. A BDS faculty member must chair the committee. The student's advisor may not serve as Chair of the preliminary exam committee. The chair is responsible for timing of the meeting and mediating the discussion. Three of the committee members should be designated as readers, who would be responsible for close reading of the proposal and dissertation.

Important timelines

1. Form a committee at least 2 months in advance.
2. Share the written document with the committee at least 1 week in advance.
3. Ask Graduate Program Coordinator to request the warrant at least 3 weeks before the meeting.
4. Remind your committee about the prelim meeting the day before.

Dissertation

In addition, and in accordance with requirements set by the Graduate School at UW- Madison, students must pass a Final Oral Exam (Dissertation Defense), following completion of their dissertation research. The primary requirement for the PhD degree is the completion of a significant body of original research and the presentation of this research in a dissertation. The research is carried out under the guidance of a member or members of the Program Faculty. The candidate must defend the dissertation in a Final

Oral Exam. The rules for the composition of the Final Oral Exam committee are the same as for the Oral Preliminary Exam, except that, following Graduate School policy, the committee must have at least four members and at least one must be from outside the program.

Academic Standards

Students should be aware of the university, college, and departmental policies regarding Graduate Students' academic performance, [Academic Policies and Procedures](#).

Graduate School Policies & Procedures: [Responsible Conduct of Research](#)

Graduate School Office of Research Policy: Policies, Responsibilities, and Procedures: Reporting Misconduct <http://kb.wisc.edu/gsadminkb/page.php?id=34486>

Graduate School Office of Research Policy: Policies, Responsibilities, and Procedures: Responsible Conduct of Research Resources <https://kb.wisc.edu/gsadminkb/search.php?cat=2907>

Academic Expectations

Continuation in the Graduate School is at the discretion of a student's program, the Graduate School, and a student's faculty advisor.

The Graduate School sets minimum standards that all graduate students in the university must meet. Many departments and programs have additional requirements that exceed these Graduate School minimum requirements. The definition of satisfactory progress varies by program. The *Graduate School Catalog*, [Graduate Guide](#), includes the Graduate School's minimum degree requirements and each program's minimum criteria for satisfactory progress.

The Graduate School requires that students maintain a minimum graduate GPA of 3.00 in all graduate-level work (300 or above, excluding research, audit, credit/no credit, and pass/fail courses) taken as a graduate student unless probationary admission conditions require higher grades. The Graduate School also considers Incomplete (I) grades to be unsatisfactory if they are not removed during the subsequent semester of enrollment; however, the instructor may impose an earlier deadline.

A student may be placed on probation or suspended from the Graduate School for low grades or for failing to resolve incompletes in a timely fashion. (<http://grad.wisc.edu/acadpolicy/#probation>) In special cases the Graduate School permits students who do not meet these minimum standards to continue on probation upon recommendation and support of their advisor.

Professional Conduct

All students are expected to adhere to the highest standards of professional behavior and ethics. Students should avoid even an appearance of improper behavior or lack of ethical standards while in Graduate School at UW-Madison, in all professional settings, and in their personal lives. Students should conduct themselves according to the standards expected of members of the profession to which the student aspires. Concerns about infractions of Professional Conduct may be effectively handled

informally between the instructor/advisor and the student. If a resolution is not achieved, a graduate program representative may be included in the discussion. Separate and apart from a violation of Professional Conduct, a student may face University disciplinary action with regard to the same action. Students are responsible for reading the information here as well as the information published on all the relevant web sites. Lack of knowledge of this information does not excuse any infraction.

1. **Professional Ethics:** Students shall show respect for a diversity of opinions, perspectives and cultures; accurately represent their work and acknowledge the contributions of others; participate in and commit to related opportunities; aim to gain knowledge and contribute to the knowledge base of others; understand the UW Student Code of Conduct; represent their profession and the program; and strive to incorporate and practice disciplinary ideals in their daily lives. Resumes/CVs must reflect accurate information.
2. **Honesty and Integrity:** Students shall demonstrate honesty and integrity as shown by their challenging of themselves in academic pursuits; honesty and ethics in research and IRB applications—including honesty in interpretation of data, commitment to an unbiased interpretation of academic and professional endeavors; and the need to document research activities, protect subject/client confidentiality and HIPPA regulations. Students
3. shall follow-through and pull their weight in group activities and understand where collaboration among students is or is not allowed; not plagiarize others or past work (self-plagiarism), cheat, or purposefully undermine the work of others; and avoid conflicts of interest for the duration of their time in the program. As a professional, honesty and integrity also extends to personal behavior in life outside of the academic setting by realizing that students are representatives of the program, UW-Madison, and the profession as a whole.
4. **Interpersonal and Workplace Relationships:** Students shall interact with peers, faculty, staff and those they encounter in their professional capacity in a manner that is respectful, considerate, and professional. This includes and is not limited to attending all scheduled meetings, honoring agreed upon work schedules, being on-time and prepared for work/meetings, contributing collaboratively to the team, keeping the lines of communication open, offering prompt response to inquiries, and employing respectful use of available equipment/technology/resources. Chronic or unexplained absences are unprofessional in the workplace and could be grounds for termination or removal of funding. To facilitate the free and open exchange of ideas, any criticism shall be offered in a constructive manner, and the right of others to hold different opinions shall be respected.
5. **Commitment to Learning:** Students are expected to meet their educational responsibilities at all times. Be actively prepared for class and be ready for questions and answers. Be on time for every class and always show courtesy during class or if you have to leave class early. If possible, students should notify the instructor at least one day in advance of a planned absence. Students who are unable to attend class are responsible for finding out what occurred that day and should not expect instructors to give them individual instruction. Recognizing that the pursuit of knowledge is a continuous process, students shall show commitment to learning by persevering despite adversity and seeking guidance in order to adapt to change. Students shall strive for academic excellence and pursue and incorporate all critique, both positive and negative, in the acquisition of knowledge in order to understand and respect the community in which they work.

This graduate program, the Graduate School, and the Division of Student Life all uphold the UW-System policies and procedures in place for academic and non-academic misconduct. In addition, graduate students are held to the same standards of responsible conduct of research as faculty and staff. Furthermore, unprofessional behavior towards clients/subjects, faculty, staff, peers and public are significant issues in the evaluation and promotion of students. In turn, we hold expectations for the highest level of academic integrity and expect professional, ethical, and respectful conduct in all interactions. Students may be disciplined or dismissed from the graduate program for misconduct or disregard for professional conduct expectations regardless of their academic standing in the program. Separate and apart from a violation of Professional Conduct, a student may face University disciplinary action with regard to the same action. Students are responsible for reading the information here as well as the information published on all the relevant web sites. Lack of knowledge of this information does not excuse any infraction.

Academic Misconduct

Academic misconduct is an act in which a student (UWS 14.03(1)):

1. seeks to claim credit for the work or efforts of another without authorization or citation;
2. uses unauthorized materials or fabricated data in any academic exercise;
3. forges or falsifies academic documents or records;
4. intentionally impedes or damages the academic work of others;
5. engages in conduct aimed at making false representation of a student's academic performance;
or
6. assists other students in any of these acts.

Examples of academic misconduct include but are not limited to:

1. cutting and pasting text from the Web without quotation marks or proper citation;
2. paraphrasing from the Web without crediting the source;
3. using notes or a programmable calculator in an exam when such use is not allowed;
4. using another person's ideas, words, or research and presenting it as one's own by not properly crediting the originator;
5. stealing examinations or course materials;
6. changing or creating data in a lab experiment;
7. altering a transcript;
8. signing another person's name to an attendance sheet;
9. hiding a book knowing that another student needs it to prepare for an assignment;
10. collaboration that is contrary to the stated rules of the course; or
11. tampering with a lab experiment or computer program of another student.

Additional information regarding Academic Misconduct:

Graduate School Policy & Procedure: Misconduct, Academic: [Academic Policies and Procedures](#)

Non-Academic Misconduct

The university may discipline a student in non-academic matters in the following situations:

1. for conduct which constitutes a serious danger to the personal safety of a member of the university community or guest;
2. for stalking or harassment;
3. for conduct that seriously damages or destroys university property or attempts to damage or destroy university property, or the property of a member of the university community or guest;

4. for conduct that obstructs or seriously impairs university-run or university-authorized activities, or that interferes with or impedes the ability of a member of the university community, or guest, to participate in university-run or university-authorized activities;
5. for unauthorized possession of university property or property of another member of the university community or guest;
6. for acts which violate the provisions of UWS 18, Conduct on University Lands;
7. for knowingly making a false statement to any university employee or agent on a university-related matter, or for refusing to identify oneself to such employee or agent;
8. for violating a standard of conduct, or other requirement or restriction imposed in connection with disciplinary action.

Examples of non-academic misconduct include but are not limited to:

1. engaging in conduct that is a crime involving danger to property or persons, as defined in UWS 18.06(22)(d);
2. attacking or otherwise physically abusing, threatening to physically injure, or physically intimidating a member of the university community or a guest;
3. attacking or throwing rocks or other dangerous objects at law enforcement personnel, or inciting others to do so;
4. selling or delivering a controlled substance, as defined in 161 Wis. Stats., or possessing a controlled substance with intent to sell or deliver;
5. removing, tampering with, or otherwise rendering useless university equipment or property intended for use in preserving or protecting the safety of members of the university community, such as fire alarms, fire extinguisher, fire exit signs, first aid equipment, or emergency telephones; or obstructing fire escape routes;
6. preventing or blocking physical entry to or exit from a university building, corridor, or room;
7. engaging in shouted interruptions, whistling, or similar means of interfering with a classroom presentation or a university-sponsored speech or program;
8. obstructing a university officer or employee engaged in the lawful performance of duties;
9. obstructing or interfering with a student engaged in attending classes or participating in university-run or university-authorized activities;
10. knowingly disrupting access to university computing resources or misusing university computing resources.

Graduate School Academic Policies & Procedures: Misconduct, Non-Academic:

[Academic Policies and Procedures](#)

Research Misconduct

Much of graduate education is carried out not in classrooms, but in laboratories and other research venues, often supported by federal or other external funding sources. Indeed, it is often difficult to distinguish between academic misconduct and cases of research misconduct. Graduate students are held to the same standards of responsible conduct of research as faculty and staff. The Graduate School is responsible for investigating allegations of research misconduct. This is often done in consultation with the Division of Student Life as well as with federal and state agencies to monitor, investigate, determine sanctions, and train about the responsible conduct of research. For more information, contact the Associate Vice Chancellor for Research Policy, 333 Bascom Hall, (608) 262-1044.

Please see section on “Grievance Procedures and Misconduct Reporting” for further information on reporting research misconduct of others. Here are links for additional information regarding Research Misconduct and Responsible Conduct:

Graduate School Policies & Procedures: [Responsible Conduct of Research](#)

Graduate School Office of Research Policy: Policies, Responsibilities, and Procedures: Reporting Misconduct <http://kb.wisc.edu/gsadminkb/page.php?id=34486>

Graduate School Office of Research Policy: Policies, Responsibilities, and Procedures: Responsible Conduct of Research Resources <https://kb.wisc.edu/gsadminkb/search.php?cat=2907>

Disciplinary Action and Dismissal

Failure to meet the program’s academic or conduct expectations can result in disciplinary action including immediate dismissal from the program. If a student is not making satisfactory progress in regards to academic or conduct expectations, the advisor will consult with the steering committee to determine if disciplinary action or dismissal is recommended.

Student progress will be reviewed through coursework and the Annual Review. If the advisor and graduate committee find that a student has failed to achieve satisfactory progress with academic or conduct expectations the student may be dismissed from the program. Students placed on probation will be placed on probation for one semester and will be reviewed by the Steering Committee following the probationary semester. Students placed on probation may be dismissed or allowed to continue based upon review of progress during the probationary semester.

The status of a student can be one of three options:

1. Good standing (progressing according to standards).
2. Probation (not progressing according to standards but permitted to enroll; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School. A cumulative GPA of 3.0 is required to graduate. See the Graduate School Academic Policies & Procedures: Probation <https://grad.wisc.edu/documents/probation/> and Grade Point Average (GPA) Requirements <https://grad.wisc.edu/documents/gpa-requirement/>.

In the case of a required course in which the student earns a grade below a B, the course must be repeated. Required courses may only be repeated once. Failure to receive a B or higher in the repeated course may result in dismissal from the program. Students must do all the work in the repeated course, including laboratory perform laboratory work; attend regularly; participate in class discussions; take examinations; and write papers. Students will earn a final grade in the course. Both grades will be used in calculating the student’s graduate grade-point average; however, the course will count only once toward meeting degree credit requirements for the program. See the Graduate School Academic Policies & Procedures: <https://grad.wisc.edu/documents/repeating-courses/>

Students may be disciplined or dismissed from the graduate program for any type of misconduct (academic, non-academic, professional, or research) or failure to meet program expectations regardless of their academic standing in the program. Separate and apart from a violation of Professional Conduct, a student may face University disciplinary action with regard to the same action. Concerns about infractions of the Professional Conduct may be effectively handled informally between the student and the advisor/faculty member. However, if a resolution is not achieved, the issue may be advanced for further review by the program.

Disciplinary Actions

Depending on the situation/program, the following are possible disciplinary action options.

- Written reprimand
- Denial of specified privilege(s)
- Imposition of reasonable terms and conditions on continued student status
- Probation
- Restitution
- Removal of the student from the course(s) in progress
- Failure to promote
- Withdrawal of an offer of admission
- Placement on Leave of Absence for a determined amount of time
- Suspension from the program for up to one year with the stipulation that remedial activities may be prescribed as a condition of later readmission. Students who meet the readmission condition must apply for readmission and the student will be admitted only on a space available basis. See the Graduate School Academic Policies & Procedures: Readmission to Graduate School: <http://www.grad.wisc.edu/education/acadpolicy/guidelines.html#146>
- Suspension from the program. The suspensions may range from one semester to four years.
- Dismissal from the program
- Denial of a degree

Depending on the type and nature of the misconduct, the Division of Student Life may also have grounds to do one or more of the following:

- Reprimand
- Probation
- Suspension
- Expulsion
- Restitution
- A zero/failing grade on an assignment/exam
- A lower grade or failure in the course
- Removal from course
- Enrollment restrictions in a course/program
- Conditions/terms of continuing as a student

Grievance Resources

If a student feels unfairly treated or aggrieved by faculty, staff, or another student, the University offers several avenues to resolve the grievance.

Graduate School Grievances & Appeals

<https://grad.wisc.edu/documents/grievances-and-appeals/>

SMPH Student Mistreatment Policy

<https://uwmadison.app.box.com/s/i2m92fmm1c1wtlwk1g6cv1igsre4yp7z>

Additional resources include:

- Employee Assistance Office – <https://eao.wisc.edu/>
- Ombuds Office - <https://ombuds.wisc.edu/>



Hostile and Intimidating Behavior

Hostile and intimidating behavior, sometimes known by the shorthand term “bullying,” is defined in university policy as “unwelcome behavior pervasive or severe enough that a reasonable person would find it hostile and/or intimidating and that does not further the University’s academic or operational interests.”

Hostile and intimidating behavior (HIB) can occur in both the private and public sectors, including colleges and universities. Even individual instances of such behavior can have a significant effect on the person it’s aimed at, and can take a physical and emotional toll, reduce the effectiveness of a person’s work, and hamper the ability of individuals – and entire units – to do their work. It is a significant reason for unhealthy workplace climate and culture, and should be addressed immediately.

Hostile and intimidating behavior can occur both within and across employment sectors – faculty on faculty, faculty on staff, etc. – and power differentials, and in any university setting (the office, the lab, in the halls, at meetings; it can happen in groups or one-on-one). Regardless of when and how it happens, it must be addressed and corrected. Hostile and intimidating behavior is prohibited by university policy.

<https://hr.wisc.edu/hib/>

Sexual Assault Reporting

Faculty, staff, teaching assistants, and others who work direct with students at UW-Madison are required by law to report first-hand knowledge or disclosures of sexual assault to university officials, specifically the Office for Equity & Diversity or the Division of Student Life. This effort is not the same as filing a

criminal report. Disclosing the victim's name is not required as part of this report. Please find full details at <http://www.oed.wisc.edu/sexualharassment/assault.html>

Child Abuse Reporting

As a UW-Madison employee (under [Wisconsin Executive Order #54](#)), you are required to immediately report child abuse or neglect to Child Protective Services (CPS) or law enforcement if, in the course of employment, the employee observes an incident or threat of child abuse or neglect, or learns of an incident or threat of child abuse or neglect, and the employee has reasonable cause to believe that child abuse or neglect has occurred or will occur. Volunteers working for UW-Madison sponsored programs or activities are also expected to report suspected abuse or neglect. Please find full details at <https://oed.wisc.edu/child-abuse-and-neglect-reporting/>

Reporting and Response to Incidents of Bias/Hate

The University of Wisconsin-Madison values a diverse community where all members are able to participate fully in the Wisconsin Experience. Incidents of Bias/Hate affecting a person or group create a hostile climate and negatively impact the quality of the Wisconsin Experience for community members. UW-Madison takes such incidents seriously and will investigate and respond to reported or observed incidents of bias/hate. Please find full details at <http://www.students.wisc.edu/rights/what-if-i-witness-or-experience-a-bias-related-incident/>



Funding and Financial Information

The **MS Degree Program** in Biomedical Data Science does not provide funding. For students who are looking for funding opportunities, the Graduate School provides a complete description of the various types of funding available on campus, at <https://grad.wisc.edu/funding/>

Graduate Assistantships – Research Assistant (RA), Teaching Assistant (TA), Project Assistant (PA), Trainee, or Fellowship

Graduate assistantships with an appointment of 33.33% or higher (>13 hours/week) include benefits: <https://grad.wisc.edu/funding/graduate-assistantships/>

- o A monthly stipend, <https://grad.wisc.edu/funding/graduate-assistantships/>
- o Remission of both resident and non-resident tuition. Students will still need to pay segregated fees (<https://registrar.wisc.edu/segregatedfees/>)
- o Eligible for health insurance (<https://www.ohr.wisc.edu/benefits/new-emp/grad.aspx#overview>) at a reasonable premium (<https://uwservice.wisconsin.edu/premiums/index.php#sgh.>)

Graduate assistants are paid on a monthly basis and stipends are deposited directly into student's bank accounts. You can authorize direct deposit by filling out the Authorization for Direct Deposit of Payroll form (<https://uwservice.wisc.edu/docs/forms/pay-direct-deposit.pdf>) and returning it to the Payroll Specialist in the department providing the funding.

Questions?

Students should consult the Payroll & Benefits Specialist Tina Petrick for all questions concerning benefits either via email at tpetrick@wisc.edu by phone at 608-263-3655 or in person at 707a WARF Office Building, 610 Walnut Street



Completing a Graduate Degree

Requirements for Completing a Graduate Degree

You must meet both the program and the Graduate School requirements for graduation. It is your responsibility to notify the Department Graduate Program Coordinator by the deadline of your intention to graduate. The department must request your degree warrant a minimum of three weeks before the degree deadline.

Completing Your Degree

For deadlines and submitting warrants go to the Graduate Schools website for either the MS or PhD degree.

For a Master's degree: <https://grad.wisc.edu/current-students/masters-guide/>

For a PhD Degree: <https://grad.wisc.edu/current-students/doctoral-guide/>

Commencement

Once a student has met their degree requirements, they may choose to attend a fall or spring commencement ceremony. Students should reference the [university's](#) website regarding commencement details such as applying to graduate, preparing for the ceremony, i.e. proper attire, dates and times and location. Biomedical Data Science degrees will graduate with the School of Medicine and Public Health with the Doctoral, Medical Professional, Master of Fine Arts, and Honorary Degrees.

Traditionally, Ph.D. students are escorted by their faculty advisor. Ph.D. students should discuss their commencement plans with their advisor.

Transcripts

The Registrar posts degrees on official transcripts approximately four to six weeks after the end of the semester. You can order transcripts at the Office of the Registrar. Call 608-262-3811 for more information.

Diploma

The Office of the Registrar will send your diploma to your DIPLOMA address approximately 12 weeks after degree conferral. Update your Diploma address via My UW prior to leaving campus.

International students: you MUST enter your DIPLOMA address via My UW to receive your diploma.

International mailing address for diploma and certification of graduation

If you wish to have your diploma sent to an address outside of the U.S., tell the Registrar ahead of time at 333 East Campus Mall #10101. Certification letters are always sent by air mail.

