Bioinformatics and Computational Biology Program

2019-20 Program Orientation

Administrative Contacts

Co-DGS

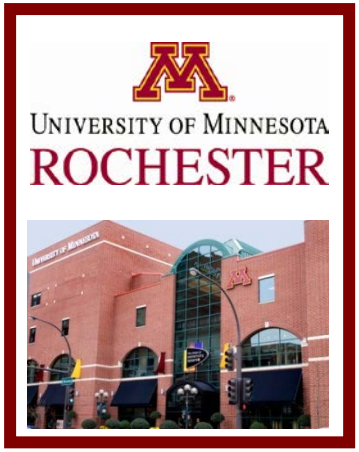
Yuk Sham
shamx002@umn.edu

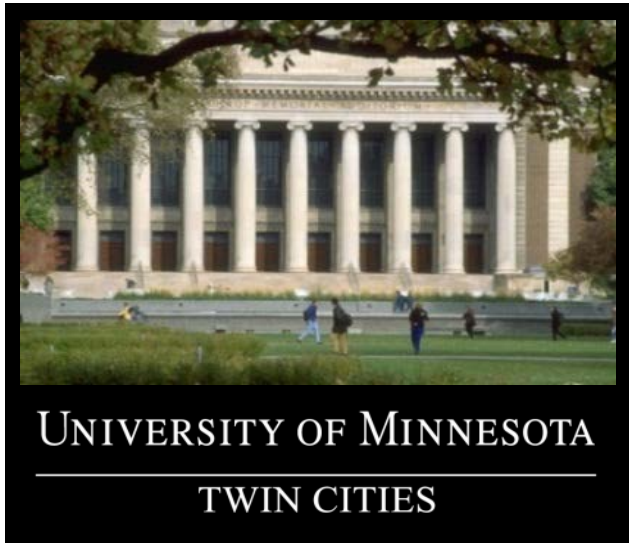
Chad Myers
chadm@umn.edu

University of Minnesota Rochester

- Established in 2007
  - RHEDC
- Focus on health sciences and biotechnology
- Programs
  - B.S. in Health Sciences (BSHS, Fall 09)
  - B.S. in Health Professions (BSHP, Fall 11)
  - M.S. and Ph.D. graduate programs in Biomedical Informatics and Computational Biology (BICB, Fall 08)
  - (Partnership programs)
- Center for Learning Innovation
  - Academic unit for faculty teaching in the BSHS

Building Partnerships





National Marrow Donor Program®

BE THE MATCH®

Brain Sciences Center

Overview: Bioinformatics and Computational Biology (BICB)

- Interdisciplinary, all-University graduate program
  - University of Minnesota Twin Cities
  - University of Minnesota Rochester (administrative home)

- Ph.D. and Master of Science (M.S. Plan A and Plan B) degrees and a Minor
- The program is suitable for full-time and part-time students.
- Graduate faculty are from
  - University of Minnesota Twin Cities
  - University of Minnesota Rochester
  - Hormel Institute
  - Mayo Clinic
  - IBM
  - National Marrow Donor Program
  - Brain Sciences Center (VA)
  - Medtronic
- Students are in residence on either the Rochester or Twin Cities campus.
- Research can be conducted on any of the participating sites.

BICB by the Numbers

Faculty (Fall 2019)	
UMTC	67
UMN-Hormel	6
Mayo	33
NMDP	4
IBM	2
Medtronic	1
Others	6
TOTAL	**119**

Total students in the program:

- 62 PhD
- 74 MS

New Students Fall 2019

- 11 Ph.D.
- 14 M.S. (2 pending)

~33% of students work full-time

Recent graduates

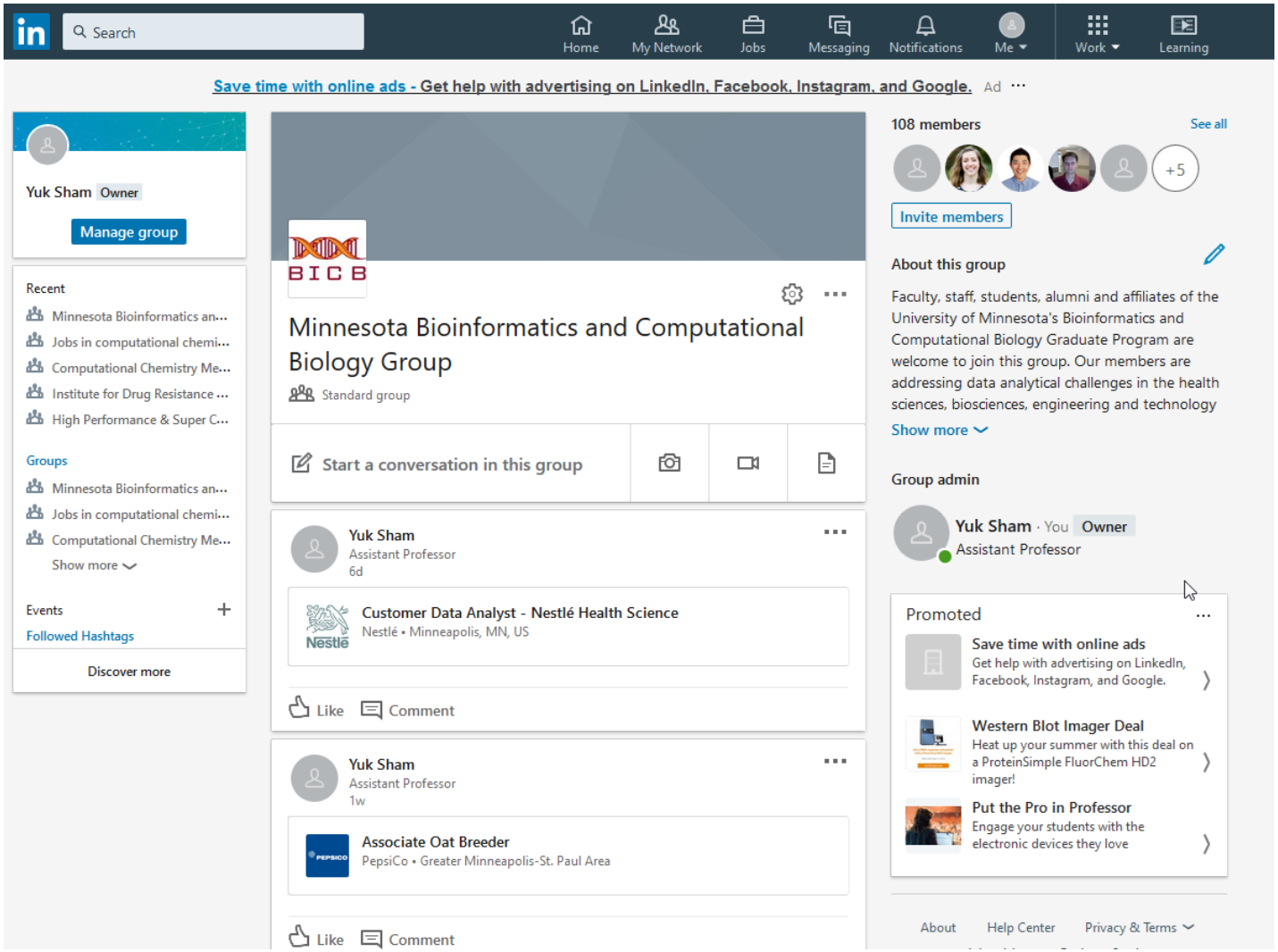
PhD graduates:

- Charlie Seto (Post-doc at Texas Children's Hospital)
- Justin Nelson (Research Scientist, Yumanity Inc, biotech startup)
- Hu Huang (Data scientist at IBM Watson Health)
- Margaret Mahan (Research Scientist, Minneapolis Medical Research Foundation)
- Eric Gaasedelen (Software Engineer at Lyft)
- Scott Simpkins (Post-doc at Stanford)
- Gabriel Al-Ghalith (Post-doc at Janssen Pharmaceuticals)
- Jean-Michel Michno (Principal Data Scientist at C.H. Robinson)
- Tinen Iles (Assistant Professor, U. of M.)

Master's graduates:

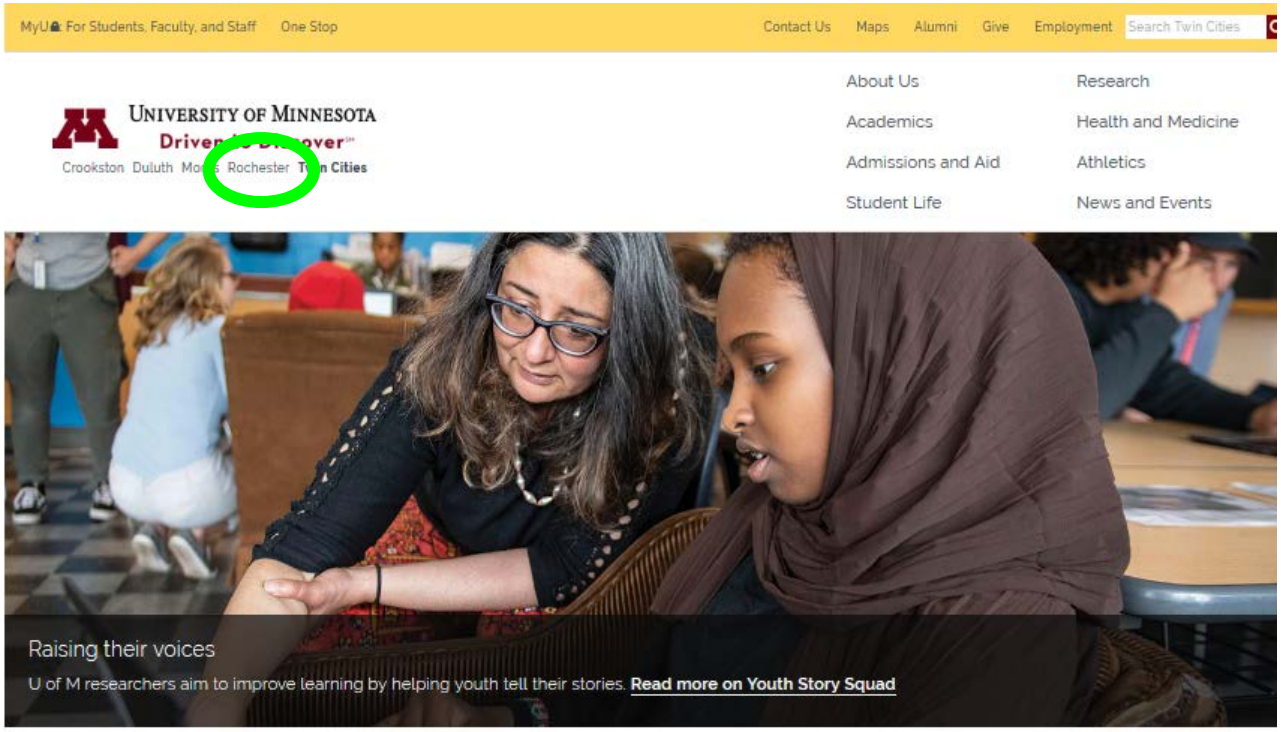
- Shengbing Huang (Mayo Clinic IT Analyst/Programmer, continuing on to BICB PhD)
- Todd Knutson (Minnesota Supercomputing Institute Research Analyst/Consultant)
- Xin Zhou (Mayo Clinic)
- Alex Deakyne (continuing on to BICB PhD)
- Dzianis Prakapenka (continuing on to BICB PhD)
- Vinod Kaggal (Technical Specialist, Mayo Clinic)
- Raphael Mwangi (Mayo Clinic, continuing on to BICB PhD)
- Noemi Vidal Folch (Development DLMP Technologist, Mayo Clinic)
- Seunghhyun Lim (continuing on to BICB PhD)

BICB LinkedIn Group



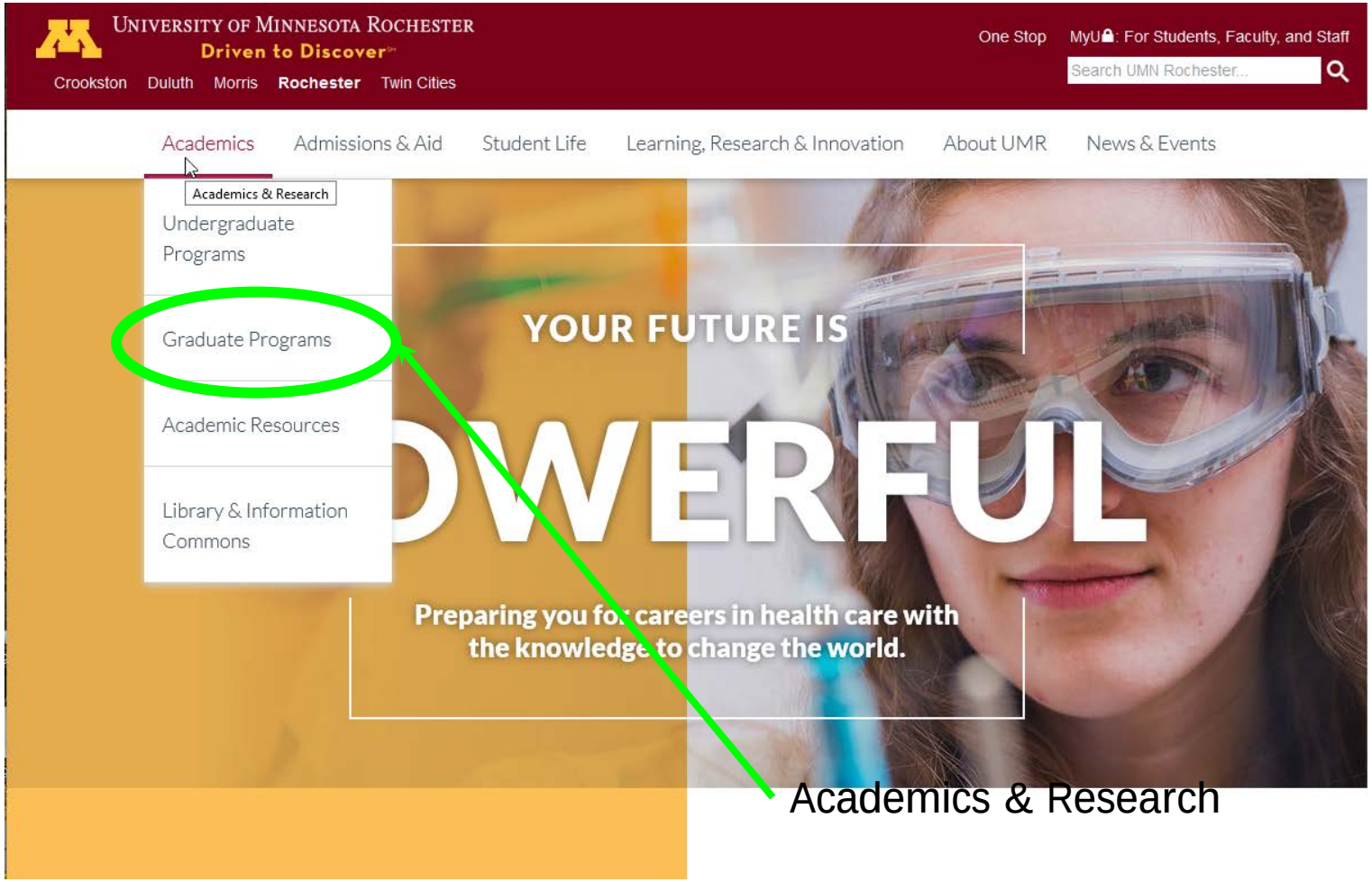
https://www.linkedin.com/groups/12234134/

How to find BICB…



http://twin-cities.umn.edu/

Under Academics of the Web Page: http://r.umn.edu/



"The skills gained from our classes can be applied to many industries and do not limit a student in their future roles. The professors in the MBA program don't just teach. Instead, they leverage the strengths of our diverse student body to apply them to the material we are examining." - Benazir Nasimova, Property Manager with Regency Multifamily

The University of Minnesota Rochester offers four graduate degrees

These programs are offered in conjunction with the University of Minnesota Twin Cities and University of Minnesota Duluth.

Master of Science in Bioinformatics and Computational Biology (BICB)

or

PhD in Bioinformatics and Computational Biology (BICB) - UMR's BICB program creates a one-of-a-kind opportunity for research and graduate education at the intersection of quantitative sciences, biology, medicine, food and agriculture.

Master of Business Administration - The Labovitz MBA offered in Rochester by the University of Minnesota Duluth is ranked second in Minnesota. Accredited by AACSB International, the program is designed to meet the needs of working professionals in a variety of industries.

Master of Occupational Therapy - The University of Minnesota's Master of Occupational Therapy program is offered on both the Twin Cities and Rochester campuses.

- PHD OR MASTER OF SCIENCE IN BIOINFORMATICS AND COMPUTATIONAL BIOLOGY ›
- MASTER OF BUSINESS ADMINISTRATION ›
- MASTER OF OCCUPATIONAL THERAPY ›

Bioinformatics and Computational Biology

About BICB
Major Objectives
Establish world-class academic and research programs at the University of Minnesota Rochester
Leverage the University of Minnesota's academic and research capabilities in partnership with Mayo Clinic, Hormel Institute, IBM, National Marrow Donor Program (NMDP), the Brain Sciences Center and other industry leaders
Build academic and research programs that complement southeast Minnesota's existing leadership roles in health sciences, biosciences, engineering and technology
Create academic and research programs that provide applications to economic activities via innovation, translational research, and clinical experiences

Program Vision
The vision of the Bioinformatics and Computational Biology (BICB) program is to conduct research and provide education through the establishment of academic and research programs. All BICB academic and research programs collaborate among the University of Minnesota Rochester (UMR), the University of Minnesota Twin Cities (UMTC), Mayo Clinic, the Hormel Institute, IBM, National Marrow Donor Program (NMDP), and the Brain Sciences Center to advance informatics and computation and to support a strong life science industry in Minnesota.

Program Background
BICB was established in 2007 as a result of legislative funding and support driven by the recommendations of the Governor of Minnesota's appointed Rochester Higher Education Development Committee (RHEDC). The committee recommended the collaborative development of an institution that focuses on health science, bioscience, engineering, and technology. This institution is the University of Minnesota Rochester.

PROGRAM DESCRIPTION >
DEGREE PROGRAMS >
PEOPLE & COMMITTEES >

Current News

BICB Orientation
BICB students and faculty are invited to attend one of the upcoming, annual orientations:
Twin Cities Campus: Tuesday, August 27, 2019, 4:00-5:30,
Walter Library, Room 404

Rochester Campus: Wednesday, August 28, 2019, 4:00-5:30,
University Square, Room 415

Refreshments will be provided.

STUDENT HANDBOOK >
BICB CONTACTS >

Degree Programs

The Bioinformatics and Computational Biology (BICB) graduate program is an interdisciplinary, all-University graduate program between the University of Minnesota Twin Cities and the University of Minnesota Rochester.

The program offers the Ph.D. and Master of Science (M.S. Plan A and Plan B) degrees and a Minor. The administrative home of the program is the University of Minnesota Rochester. The College of Science and Engineering is the partnering college on the Twin Cities campus.

Its graduate faculty include researchers from the University of Minnesota Twin Cities, the University of Minnesota Rochester, the Hormel Institute, the Mayo Clinic, IBM, National Marrow Donor Program (NMDP), and the Brain Sciences Center. Students are in residence on either the Rochester campus or the Twin Cities campus. The program is suitable for full-time and part-time students.

PH.D. DEGREE PROGRAM >

MASTER'S DEGREE PROGRAM >

MINOR >

Ph.D. Degree Program

The degree completion steps detail the twelve administrative steps that must be completed. Before you contact the Graduate School for specific questions, contact the DGS or DGS Assistant of the program.

Every Ph.D. graduate student will have a temporary advisor assigned when entering the program. The student is expected to decide on a research area by the end of the first year and to choose a permanent advisor by the end of the first year. The time limit for earning a Ph.D degree is eight years. Students who are unable to complete the program within eight years may petition for an extension of up to 24 months.

You and your adviser will determine the course work you will need to take to gain competency in your specialty. The BICB program is designed to allow for maximum flexibility. There are a few courses and seminars, however, every Ph.D. student takes: four semesters of Journal Club (BICB 8930), two semesters of Colloquium (BICB 8920), two semesters of Computation and Biology (BICB 8510), one semester of Proposal Writing Seminar (BICB 8932), one semester or quarter seminar (1 credit) of Ethics, and one semester (1 credit) of Entrepreneurship and Leadership (e.g., BICB 8970). (The requirements for BICB 8510 and BICB 8932 may be waived upon request if the student is very advanced when entering the program.)

A degree program is a list of coursework that you submit to the Graduate School as the basis for your degree. It may not contain all courses and seminars you complete during the course of your degree but must contain all required courses and seminars. The Degree Program Form is available online. List only graduate level courses (one 4000 level course is permitted). Graduate Education policy requires that a minimum of 2/3 of the course credits included in the degree plan are taken A/F and that students should maintain an overall GPA of 3.000 for courses included on the degree plan at the time of degree clearance. You must file your degree program at least one semester prior to taking your preliminary oral exam. Assign members to the preliminary oral exam committee at least one month prior to submitting your preliminary written exam to the program (typically, two members of your preliminary oral exam committee will also review your preliminary written exam). Once the degree program is approved, any changes must be petitioned to the Graduate School by submitting a Petition Form.

Core Areas & Electives

Examinations and Committees

Internships

Master's Degree Program

The BICB graduate program offers the master's degrees under two different plans: Plan A, which requires a thesis; and Plan B, which substitutes additional coursework and a capstone experience. Each plan has a minimum of 30 credits. There are degree completion steps for each of the two plans.

Every M.S. graduate student will have a temporary advisor assigned when entering the program. The student is expected to decide on a research area by the end of the first year and to choose a permanent advisor by the end of the first year. The time limit for earning a Master's degree is five years. Students who are unable to complete the program within five years may petition for an extension of up to 12 months.

You and your adviser will determine the course work you will need to take to gain competency in your specialty. The BICB program is designed to allow for maximum flexibility. There are a few courses and seminars, however, every Master's student takes: two semesters of Journal Club (BICB 8930; 1 credit per semester), one semester of Colloquium (BICB 8920; 1 credit), one semester (or quarter) of Ethics (1 credit), and one semester of Entrepreneurship and Leadership (e.g., BICB 8970; 1 credit). These five required credits count toward the completion of the 30 required credits for the M.S. degree.

The examining committee for a M.S. graduate student should be chosen by the end of the first year to allow time for feedback on your thesis work or project. It consists of at least two members from the BICB graduate faculty and, if the student has a Minor, one member from the student's Minor. If the student does not have a Minor, all members of the examining committee may be from the BICB graduate faculty but must represent at least two different budgetary units. The advisor will be the chair of the examining committee. Initiate the online form for assigning members to the master's final exam committee at least one month prior to the final exam.

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Master's Plans A or B

Core Areas & Electives

Examination and Committee

BICB

PROGRAM PROCEDURES

Degree Programs

- Ph.D.
  - Individualized
  - Research focus
  - Preliminary written and preliminary oral exam
  - Thesis defense
  - Time limit: 8 years
- M.S. (30 credits)
  - individualized
  - Plan A
    - Research thesis (10 credits)
  - Plan B
    - Synthesis paper or short project
  - Decision on plan after completion of about 10-15 credits
  - Final oral exam
  - Time limit: 5 years

GRADUATE STUDENT HANDBOOK

Bioinformatics and Computational Biology

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Graduate students are admitted to the University of Minnesota after review of applications by the faculty of the program for which the student applied. The Bioinformatics and Computational Biology (BICB) graduate program is one of many graduate programs offered by the University of Minnesota. A list of all majors and degrees offered by the University of Minnesota, the faculty members, requirements, and courses can be found in the Graduate School Catalog.

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Annual Review +

Courses +

Academic Dates and Deadlines +

Permission Numbers +

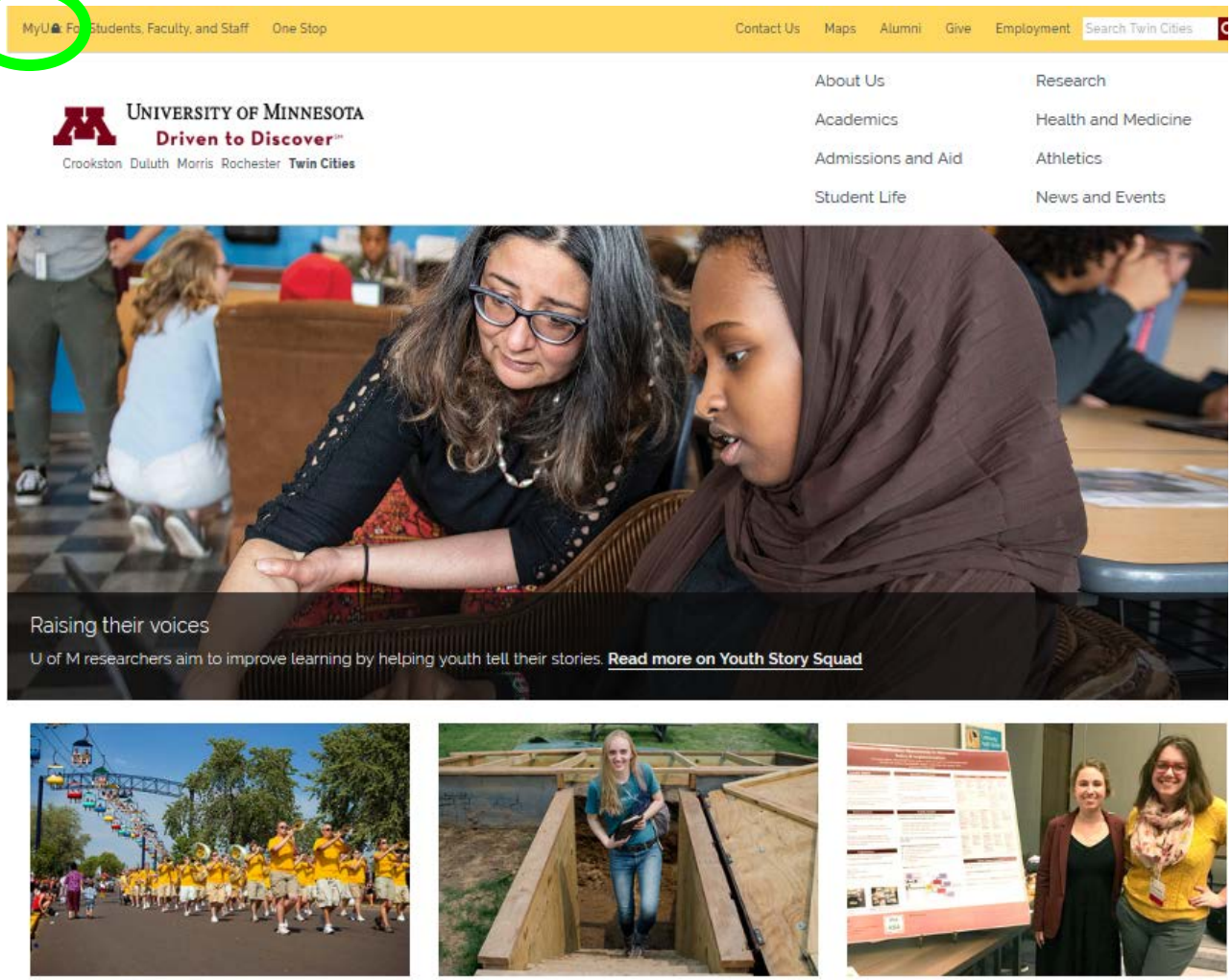
Registration Information +

Registration Options +

Your University Internet Account +

REGISTRATION

MyU and One Stop…

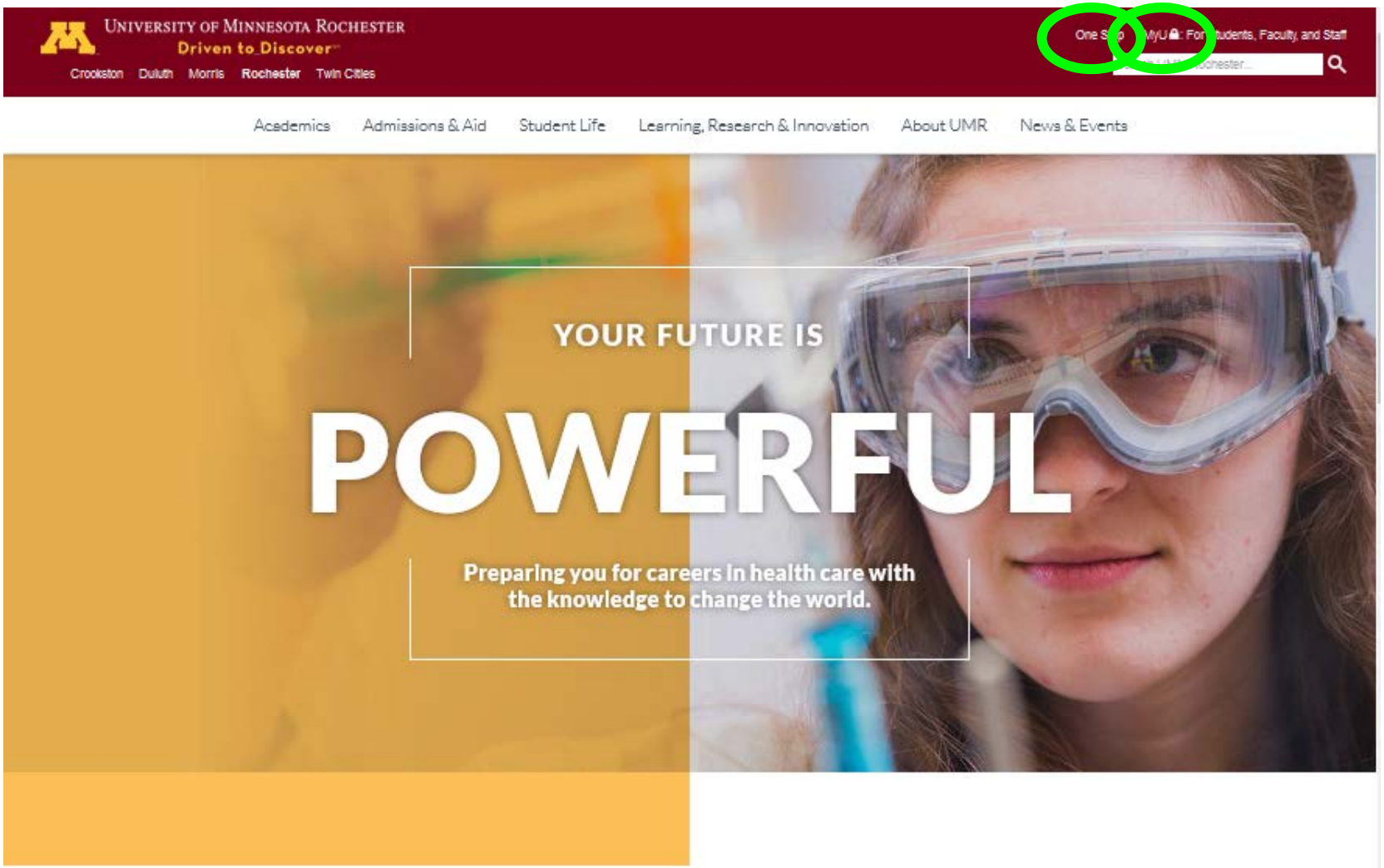


http://twin-cities.umn.edu/

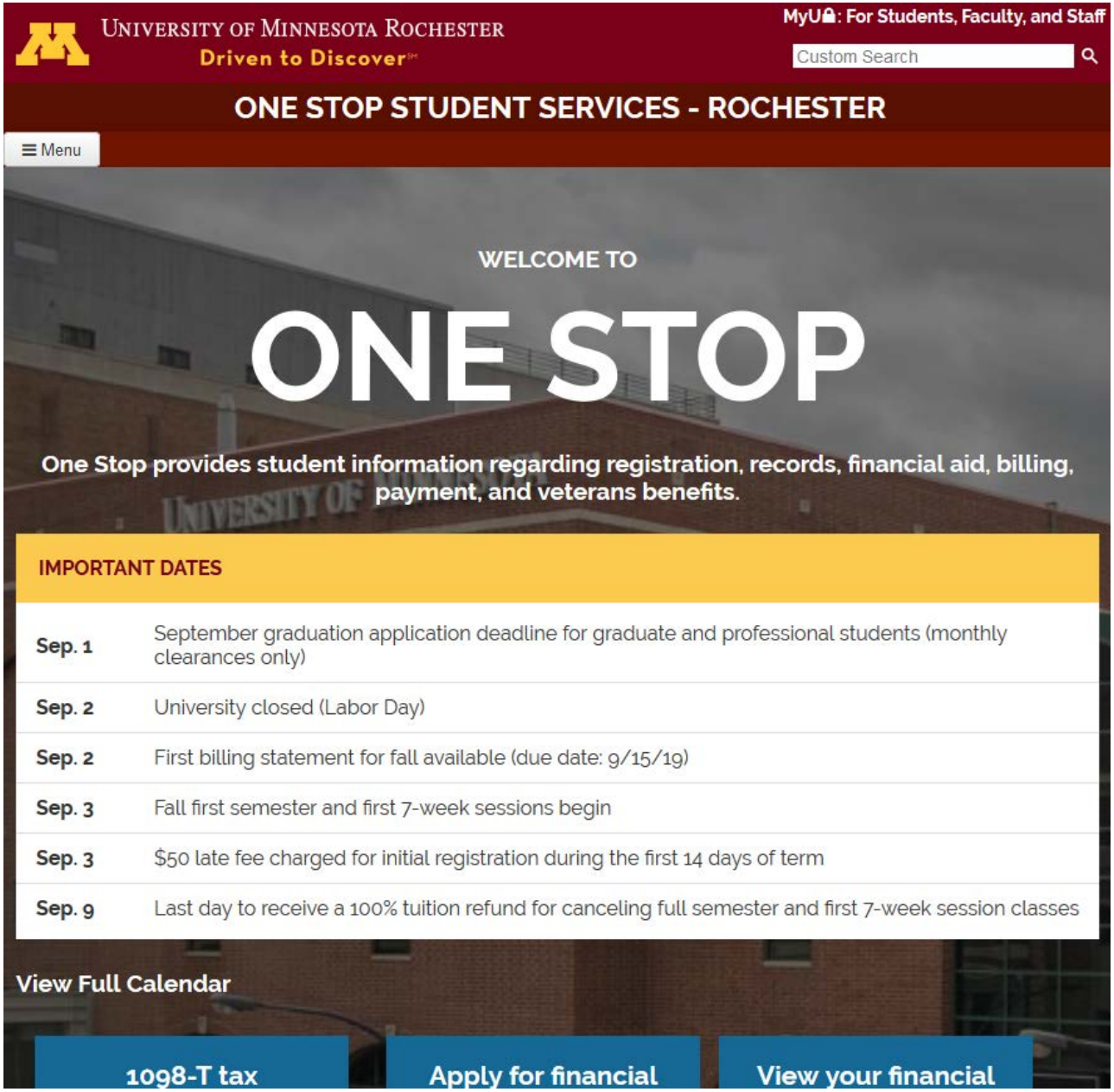
MyU and One Stop…

http://twin-cities.umn.edu/

UMR MyU and One Stop



UMTC One Stop



https://onestop.r.umn.edu/

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Full-time and Part-time

- Full-time students: 6 or more credits
  - Banded tuition: same tuition for 6-14 credits
  - Proof of health insurance required at registration
- Part-time students: 0-5 credits
  - Tuition: pay per credit
- Fees vary by credit
- Credits listed on class schedule
  - Auditing a course costs tuition
- All completion times in the Handbook are listed for full-time students
  - Adjust times if you are a part-time student

Registration

- Students need to register every fall and spring
  - All registration through MyU
- Register BEFORE classes start to avoid late fees
- GRAD 999 (0 credits, no tuition)—not for students who need to be full time students, but especially for part-time students who need to take off a semester
- Advanced students (after completion of ALL requirements)
  - M.S. Students: BICB 8333 (1 credit, reduced tuition)
    - Special form; requires approval
  - Ph.D. Students: BICB 8444 (1 credit, reduced tuition)

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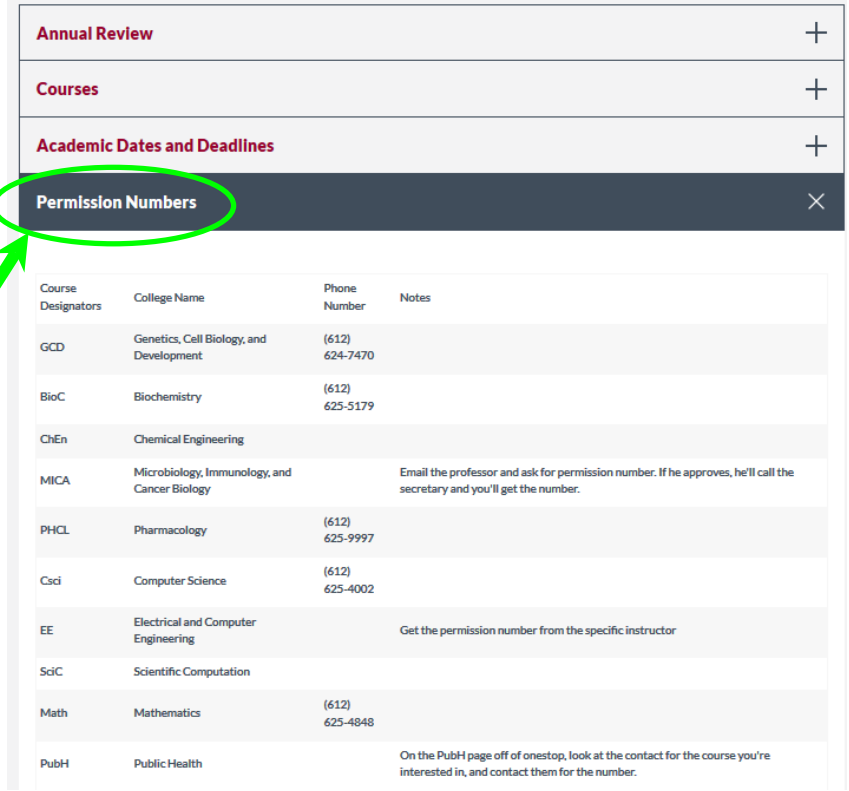
Finding Courses

- BICB courses and other University of Minnesota courses are listed on the MyU website under Class Search
- Permission numbers are required for many graduate courses
  - BICB: DGS
  - Other courses



Annual Review +

Courses +

Academic Dates and Deadlines +

Permission Numbers ×

Course Designators	College Name	Phone Number	Notes
GCD	Genetics, Cell Biology, and Development	(612) 624-7470	
BioC	Biochemistry	(612) 625-5179	
ChEn	Chemical Engineering		
MICA	Microbiology, Immunology, and Cancer Biology		Email the professor and ask for permission number. If he approves, he'll call the secretary and you'll get the number.
PHCL	Pharmacology	(612) 625-9997	
Csci	Computer Science	(612) 625-4002	
EE	Electrical and Computer Engineering		Get the permission number from the specific instructor
SciC	Scientific Computation		
Math	Mathematics	(612) 625-4848	
PubH	Public Health		On the PubH page off of onestop, look at the contact for the course you're interested in, and contact them for the number.

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Courses (not a complete list)

Annual Review +

Courses ×

The BICB program is composed of courses that are mostly taught out of Twin Cities departments or Mayo Graduate School. These courses are divided into core and elective courses. Below is a list of courses. This list is not exhaustive. If you and your adviser identify a course that is not on the list but is essential for gaining competency in your area of specialty, contact the Director of Graduate Studies to find out which of the areas the course would fall under. Most BICB courses and seminars listed below are Pass/Fail (where applicable).

DESCRIPTION OF BICB COURSES

Core Courses

1. **BICB 8510 Computation and Biology (2 crs; up to 2 repetitions totaling up to 4.0 crs)**
   This course will be taught in modular form and will provide first-year graduate students with an overview of topics in molecular biology and genetics; mathematics, statistics and biostatistics; programming in FORTRAN and C/C++; programming in Perl; data management; and data mining. The modules will be offered based on the needs of each incoming class of BICB graduate students.
2. BICB 8990 Seminar on Current Topics (1 crs; up to 4 repetitions totaling up to 4.0 crs)
   Sections in this seminar will vary depending on instructor.
3. BICB 8991 Independent Study (1-2 crs; up to 2 repetitions totaling up to 4.0 crs)
   This course may be used by graduate students for reading courses with appropriate faculty or to conduct other independent studies. Ph.D. graduate students may only register for this course prior to passing the preliminary oral exam. M.S. graduate students may register for this course at any time.

Elective Courses

1. BICB 8940 Education and Pedagogy Seminar (1 crs; up to 4 repetitions totaling up to 4.0 crs)
   This seminar will meet weekly in the fall semester. It will give students and faculty the opportunity to discuss effective teaching methods, advising methods, etc., with an emphasis on interdisciplinary training and training across multiple institutions.
2. BICB 8970 Leadership Seminar (1 cr; 2 repeats allowed)
   This leadership seminar will focus on clinical and translational research and entrepreneurship. It will meet every other year and will feature invited speakers who are involved in clinical and translational research.

Mayo Clinic Courses and UMTC MOT Courses

1. BICB 5620 Topics in Biomedical Informatics and Computational Biology (0.5–4 crs; up to 6 repetitions totaling up to 24.0 crs) Each section of this course corresponds to a Mayo Clinic 5xxx or 6xxx course. Contact DGS before enrolling
2. BICB 8620 Topics in Biomedical Informatics and Computational Biology (0.5–4 crs; up to 6 repetitions totaling up to 24.0 crs)
   Each section of this course corresponds to a Mayo Clinic 8xxx course. Contact DGS before enrolling.
3. BICB 8670 Topics in Management of Technology (0.5-4.0 crs; up to 6 repetitions totaling up to 24.0 crs)
   Each section of this course corresponds to a MOT course. Contact DGS before enrolling.

Link to non-BICB courses frequently taken by BICB students: https://drive.google.com/open?id=1g2OZizUdGJroxUJ8IXctxGMKw6AXeJjV

Courses

- Core Areas
  1. Biochemistry, molecular and cell biology
  2. Database, data mining, and computing
  3. Informatics, analysis, and machine learning
  4. Mathematics, biostatistics, and statistics
  5. Computational and systems biology

- Elective Courses
  1. Biochemistry, molecular and cell biology
  2. Informatics, database, data mining, and computing
  3. Mathematics, biostatistics, statistics
  4. Chemistry, chemical engineering, and physics
  5. Biophysics and structural biology
  6. Imaging, information theory, and signal processing
  7. Computational chemistry, medicinal chemistry, and drug design
  8. Clinical and translational sciences

Courses

- BICB Courses
  - Offered via Zoom on both campuses
- UMTC courses
  - All are offered at UMTC
  - Some are offered through UNITE
    - INFORM DGS BEFORE YOU SIGN UP FOR A UNITE COURSE-- WE WILL COVER THE FEE FOR FULL-TIME STUDENTS
- Mayo Clinic Courses
  - Inform DGS which ones you'd like to take
  - DGS will help you register at Mayo Clinic
  - You register for appropriate section in BICB 5620 or 8620
  - If you work at Mayo, enroll as a non-degree student at Mayo (saves tuition)

Career Development

- Ethics
  - BICB 8401: Ethical Issues in Bioinformatics (Fall Semester)
  - Public Health courses
    - PUBH 6741
    - PUBH 6742
    - BIOC 8401

      (Ethics requirement waived students taking ethics courses through other degree programs)
- Leadership and management
  - BICB 8970 (Spring semester)
  - PA 4190 Topics in Public and Nonprofit Leadership and Management (Fall semester)

Master's Degree (Plan A and B)

- 30 credits
- Core 1 and one of Cores 2-5: at least 9 credits
- Electives: at least 5 credits
- Journal Club (BICB 8930, 2 sem), Colloquium (BICB 8920, 1 sem), Ethics (1 credit), Leadership (1 credit)
- Limit of one 4xxx level course
- Degree plan submitted prior to decision about Plan
  - Adviser required for submission
  - Plan A: 10 thesis credits (BICB 8777)
  - Plan B: additional courses, capstone
- Examining committee
  - One semester prior to intended graduation
  - Student initiates workflow
  - Approval by program

- Plan A:
  - Start research during first year
  - Pre-thesis seminar during second year
  - Finish thesis by the end of second year or middle of third year
  - Take final oral examination
- Plan B:
  - Write one to three synthesis papers or do small project with project report
  - Finish coursework and reports by end of second year
  - Take final oral examination

Ph.D. Degree

- 1st year students: Meet with DGS and temporary advisor before first term starts to determine coursework (prerequisites and graduate courses)
- Degree advisor by end of first year
- Regular meetings with examining committee
- Degree program submitted prior to preliminary written exam
  - Adviser
  - 24 course credits
  - **24 thesis credits: can be taken prior to preliminary oral exam with permission of adviser**
  - Other requirements
- Form examining committee prior to preliminary written exam

- Course Credits: 24 credits
  - 12 credits in Core (Core Area 1 and at least two of the Core Areas 2-5); BICB is Core
  - Core courses are also elective courses
  - Limit of one 4xxx level course
  - We are open to suggestions of additional courses
- 24 thesis credits
- Minor in another field is possible
- BICB 8510
  - Two semesters
- BICB 8920 BICB Colloquium
  - Two semesters
  - Do not count as Core or Elective courses
- BICB 8930 Journal Club
  - Four semesters
  - Do not count as Core or Elective courses

- Proposal Writing Seminar (1 cr)
  - 4th semester
  - Proposal (preliminary written examination) due by the end of 4th semester
  - Does not count as Core or Elective course
- Ethics (1 cr) and Leadership/Management (1 cr)
  - Count as Elective courses
- Internship/Lab rotation
  - Completed within the first 2-3 years
  - Equivalent to about 120 hours of industrial or clinical internships or lab rotations
  - Prior experience can be applied
- Pre-thesis seminar before preliminary oral examination
- Preliminary Oral Examination by the end of 5th semester

Preliminary Written Examination

- BICB 8932 Proposal Writing Seminar (unless submitted earlier)
- Due by the end of 2nd year
- Written as a thesis proposal (about 12 pages)
- Significant step in formulating student's research questions and developing methods
- Early deadline will ensure feedback
- Evaluated by at least 3 BICB Grad Faculty, approved by BICB Grad Faculty
  - 2 examiners are from the examining committee

Joint PhD/MS Degree

- Biomedical PhD program
- MS in BICB
  - Biology courses transfer
  - BICB seminars (2xBICB 8930, BICB 8920, BICB 8970; ethics from PhD program)
  - Computational courses as appropriate to do research
  - Typically Plan B

UNIVERSITY OF MINNESOTA

DEGREE COMPLETION STEPS

Doctor of Philosophy
Doctor of Education

In order to receive your degree, the following procedures must be completed. You must maintain active student status by registering every fall and spring semester until your degree is awarded. All forms must be submitted to the Graduate Student Services and Progress (GSSP) office unless otherwise noted. Contact your graduate program office for program-specific requirements and deadlines.

1 Complete Graduate Degree Plan

Submit at least one semester prior to your preliminary oral exam

2 Assign members to preliminary oral exam committee

Complete at least one month prior to exam via www.grad.umn.edu/students/forms/doctoral/index.html

3 Complete Preliminary Written Exam Report

Must be on file to be authorized to take preliminary oral exam

4 Schedule preliminary oral exam

Notify GSSP of scheduled exam at least one week in advance

5 Submit Preliminary Oral Report

Submit for your record to reflect doctoral candidacy

6 Assign members to doctoral final exam committee

Complete at least one month prior to exam via www.grad.umn.edu/students/forms/doctoral/index.html

7 Request Graduation Packet

Packet will include the Graduate Application for Degree form and Reviewers' Report form. You can request it in person or online up to one semester before your doctoral final exam.

8 Schedule doctoral final exam

Notify GSSP of scheduled exam at least one week in advance

9 Submit Graduate Application for Degree

Submit to One Stop by the first business day of anticipated month of graduation

10 Submit Reviewers' Report

Submit prior to your defense

11 Submit Doctoral Final Exam Report

Submit no later than the last business day of anticipated month of graduation

12 Submit dissertation/project

Submit by the last business day of anticipated month of graduation. Consult Graduation Packet for formatting guidelines.

Questions?

Contact the Graduate Student Services and Progress office (160 Williamson Hall)
http://www.grad.umn.edu/students/doctoral/index.html

Renae Faunce
Graduate Degree Plans & Committee Assignments
gscmte@umn.edu
612-625-5833

Stacia Madsen
Degree Progress & Final Exams
gsdoc@umn.edu
Prelim Exams
gradssp@umn.edu
612-625-0168

OTR204 8/12

DEGREE COMPLETION STEPS

Master's Plan A

e, the following procedures must be completed. You must maintain active very fall and spring semester until your degree is awarded. All forms must be dent Services and Progress (GSSP) office unless otherwise noted. Contact for program-specific requirements and deadlines.

uate Degree Plan

ast one semester prior to anticipated graduation

mbers to master's l exam committee

month prior to exam via orms/masters/index.html

Graduation Packet

the Graduate Application iewers' Report form. You erson or online up to one your master's final exam.

duate Application for Degree

/ the first business day of ated month of graduation

5 Submit Reviewers' Report

Submit prior to master's final exam to obtain the Final Examination Report form.

6 Submit Final Examination Report

Must be submitted no later than the last business day of anticipated month of graduation.

7 Submit Thesis

Submit by the last business day of anticipated month of graduation. Consult your Graduation Packet for formatting guidelines.

Questions?

duate Student Services and Progress office (316 Johnston Hall).

www.grad.umn.edu/students/masters/index.html

Renae Faunce
Graduate Degree Plans & Committee Assignments
gscmte@umn.edu
612-625-5833

Amber Cellotti
Degree Progress & Completion
gsmast@umn.edu
612-625-4019

DEGREE COMPLETION STEPS

Master's Plan B
Master's Plan C

following procedures must be completed. You must maintain active fall and spring semester until your degree is awarded. All forms must be Services and Progress (GSSP) office unless otherwise noted. Contact ogram-specific requirements, deadlines, and to determine if your

Degree Plan

rior to anticipated graduation

to master's n committee

plete at least one prior to exam via asters/index.html

ation Packet

ude the Graduate orm and the Final Report form. You r online up to one ster's final exam.

4 Submit Graduate Application for Degree

Submit to One Stop by the first business day of anticipated month of graduation

5 Submit Final Examination Report/Final Report

Submit by the last business day of anticipated month of graduation

Questions?

Student Services and Progress office (316 Johnston Hall).

ww.grad.umn.edu/students/masters/index.html

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612-625-5833

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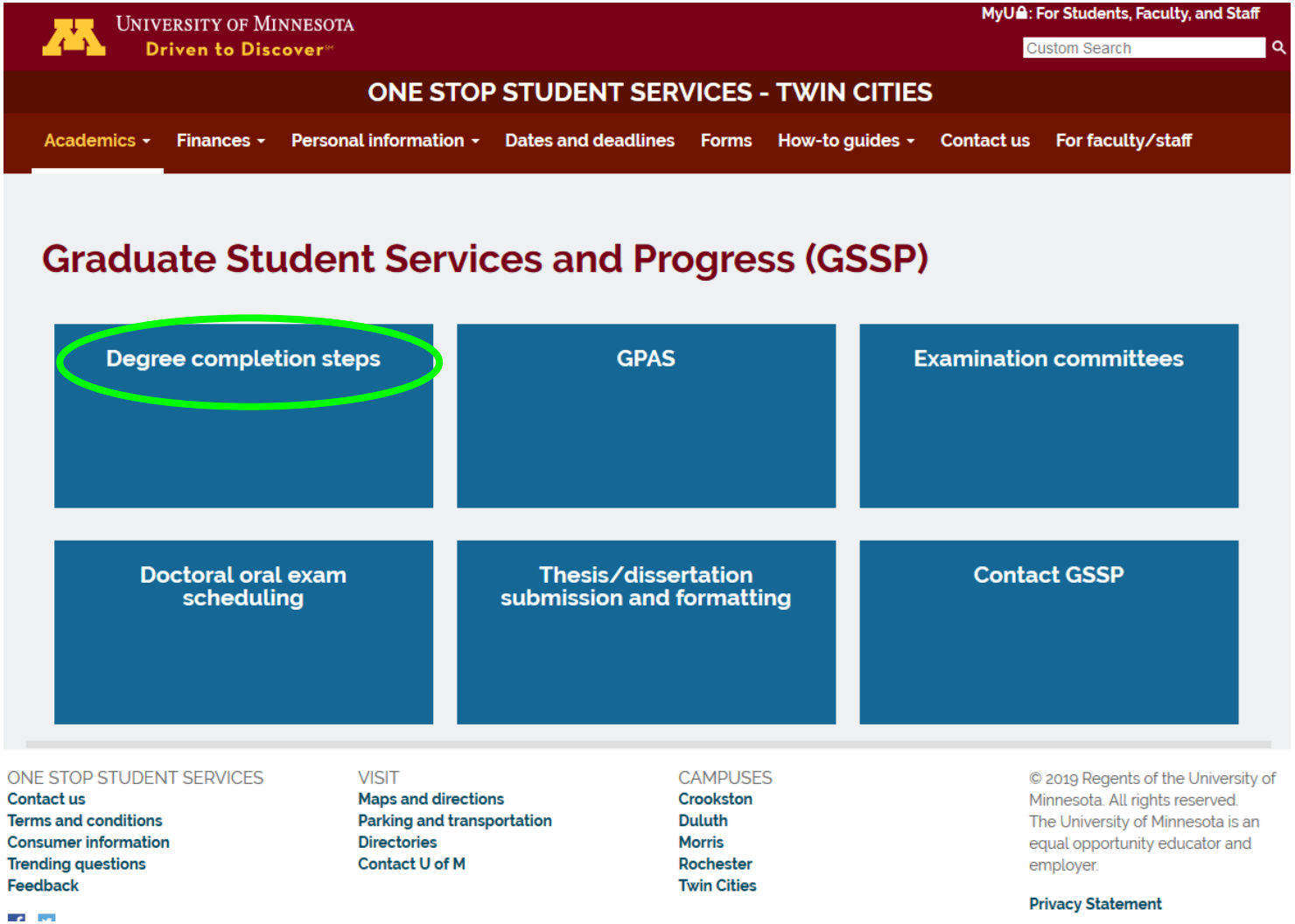
gsmast@umn.edu
612-625-4019

The First Steps

- Program assigns adviser
- Students prepare degree plan with input from DGS
  - DGS approves/submits degree plan to graduate school
- Once approved, you assign committee members online
  - Adviser and program approval

Graduate Student Services and Progress Office (GSSP)



https://onestop.umn.edu/academics/graduate-student-services-and-progress-gssp

Graduate Degree Plan (GDP) students

All students follow the Gradaute Degree Plan degree completion steps, unless you fall into the GPAS categories above. You must submit your **Graduate Degree Plan form** at least one semester prior to your anticipated graduation. To update your degree plan, please complete the **graduate student petition form**.

If you have questions about your degree completion steps or are unsure if you are a GPAS or GDP student, please **contact GSSP**.

Master's students >

Doctoral students >

Post-Baccalaureate and Specialist Certificate in Education students >

Years to degree completion

- For master's students, you have five calendar years to complete your degree according to the **master's degree: performance standards and progress policy**.
- For doctoral students, you have eight calendar years to complete your degree according to the **doctoral degree: performance standards and progress policy**.

Students admitted prior to spring 2013 adhere to a different set of policies. Please contact your graduate program or **GSSP** for more information.

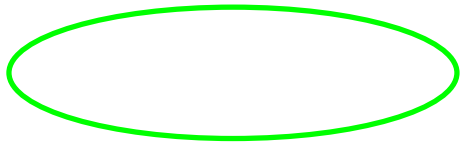
If you need additional time for your degree, please complete the Doctoral or Master's **Request for Extension to the Maximum Time Limit form**.

Your Advisor(s) and Examining Committee

- Temporary advisor at arrival (DGS is default for M.S.)
- Degree advisor by the end of first year
  - Co-advising is encouraged for Ph.D. and M.S. (Plan A)
- Examining Committee
  - **Ph.D.**
    - Adviser and three additional members
      - At least three members, including the adviser, from the BICB program
    - Find committee members one semester prior to taking preliminary written exam
    - Meet regularly
  - **M.S.**
    - Adviser and two additional members
      - At least two members, including the adviser, from the BICB program
    - Plan A: Find committee members by the end of second semester
    - Plan B: Find committee members one semester prior to graduation
    - Meet regularly
  - One external member permitted

Graduate Faculty

- To identify advisors and committee members go to Graduate Faculty on the Graduate Program Home Page
- https://r.umn.edu/academics-research/graduate/bicb/people-and-committees/graduate-faculty



Bioinformatics and Computational Biology

About BICB
Major Objectives
Establish world-class academic and research programs at the University of Minnesota Rochester
Leverage the University of Minnesota's academic and research capabilities in partnership with Mayo Clinic, Hormel Institute, IBM, National Marrow Donor Program (NMDP), the Brain Sciences Center and other industry leaders
Build academic and research programs that complement southeast Minnesota's existing leadership roles in health sciences, biosciences, engineering and technology
Create academic and research programs that provide applications to economic activities via innovation, translational research, and clinical experiences

Program Vision
The vision of the Bioinformatics and Computational Biology (BICB) program is to conduct research and provide education through the establishment of academic and research programs. All BICB academic and research programs collaborate among the University of Minnesota Rochester (UMR), the University of Minnesota Twin Cities (UMTC), Mayo Clinic, the Hormel Institute, IBM, National Marrow Donor Program (NMDP), and the Brain Sciences Center to advance informatics and computation and to support a strong life science industry in Minnesota.

Program Background
BICB was established in 2007 as a result of legislative funding and support driven by the recommendations of the Governor of Minnesota's appointed Rochester Higher Education Development Committee (RHEDC). The committee recommended the collaborative development of an institution that focuses on health science, bioscience, engineering, and technology. This institution is the University of Minnesota Rochester.

PROGRAM DESCRIPTION >
DEGREE PROGRAMS >
PEOPLE & COMMITTEES >

Current News

BICB Orientation
BICB students and faculty are invited to attend one of the upcoming, annual orientations:
Twin Cities Campus: Tuesday, August 27, 2019, 4:00-5:30,
Walter Library, Room 404

Rochester Campus: Wednesday, August 28, 2019, 4:00-5:30,
University Square, Room 415

Refreshments will be provided.

STUDENT HANDBOOK >
BICB CONTACTS >

People & Committees

The University of Minnesota Rochester Bioinformatics and Computational Biology (BICB) graduate program is a collaborative academic and research program drawing upon the unique strength of southeast Minnesota and the University of Minnesota in health sciences, biosciences, engineering, and technology. The administrative home is located on the Rochester campus of the University of Minnesota.

Currently, the following institutions and departments are actively participating in the BICB graduate program and research initiatives:

- Cray Inc.
- Hormel Institute
- IBM
- Mayo Clinic
- National Marrow Donor Program (NMDP)
- University of Minnesota Rochester
- University of Minnesota Twin Cities Participating Departments and Divisions
  - Animal Science
  - Biochemistry, Molecular Biology and Biophysics
  - Biostatistics
  - Chemistry
  - Chemical Engineering and Materials Science
  - Computer Science and Engineering
  - Dentistry
  - Electrical and Computer Engineering
  - Genetics, Cell Biology and Development
  - Linguistics
  - Mathematics
  - Nursing
  - Pathology
  - Pharmacy
  - Plant Biological Sciences
  - Psychiatry
  - Psychology
  - Supercomputing Institute

FACULTY AND ADVISORY COMMITTEE >

GRADUATE PROGRAM STEERING COMMITTEE >

GRADUATE FACULTY >

Graduate Faculty

The graduate faculty of the BICB graduate program comes from eight institutions (University of Minnesota including Hormel Institute; Cray Inc.; IBM; Mayo Clinic; National Marrow Donor Program; Brain Sciences Center).

- University of Minnesota Faculty
- Mayo Clinic Faculty
- IBM Faculty
- National Marrow Donor Program (NMDP) Faculty
- Brain Sciences Center
- Other Affiliated Faculty

FACULTY RESPONSIBILITIES >

University of Minnesota Faculty +

Mayo Clinic +

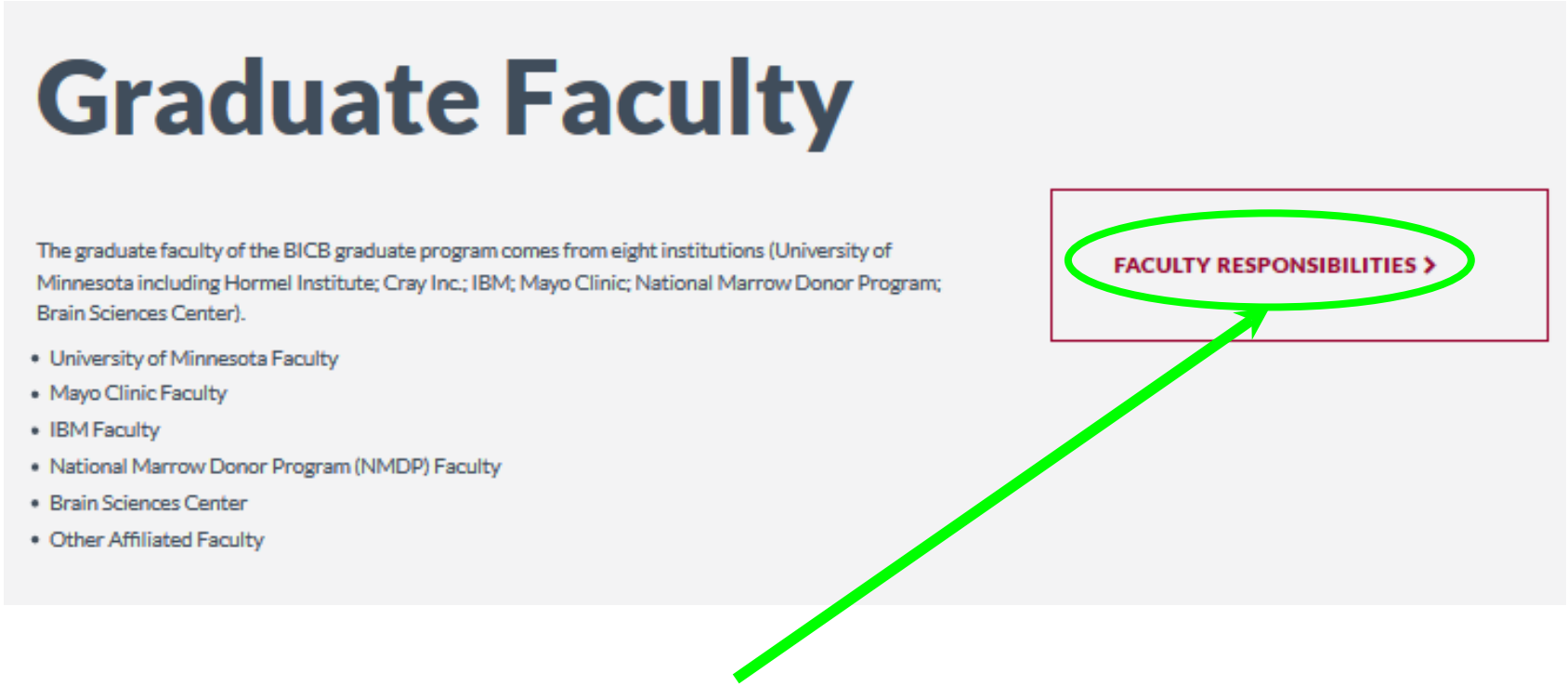
IBM +

National Marrow Donor Program (NMDP) +

Brain Sciences Center +

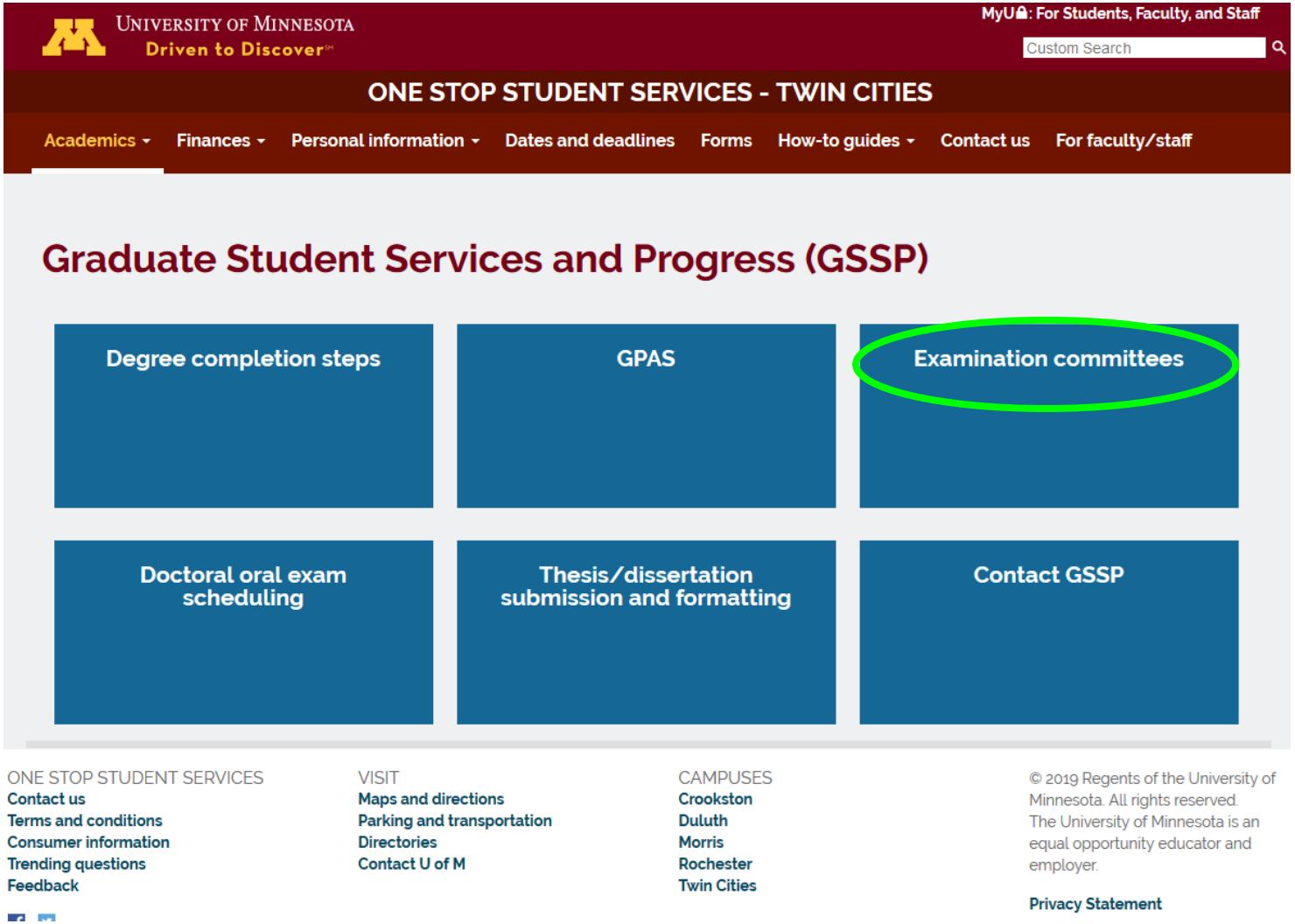
Other Affiliated Faculty +

Roles and Responsibilities of Graduate Faculty



- To read about roles and responsibilities of graduate faculty, go to Roles and Responsibilities of Graduate Faculty

Graduate Student Services and Progress Office (GSSP)



https://onestop.umn.edu/academics/graduate-student-services-and-progress-gssp

Graduate Degree Plan (GDP) students

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- **Master's students** ›
- **Doctoral students** ›
- **Post-Baccalaureate and Specialist Certificate in Education students** ›

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Students admitted prior to spring 2013 adhere to a different set of policies. Please contact your graduate program or **GSSP** for more information.

If you need additional time for your degree, please complete the Doctoral or Master's **Request for Extension to the Maximum Time Limit form**.

Committee policies

- Master's final examination committee
- Doctoral prelim and final oral examination committees
- Specialist examination committee
- Post-baccalaureate certificate students

External committee members

Occasionally, there is not sufficient expertise among the faculty to examine your work with a very narrow or specific research focus. In these instances, the college may consider a request for an expert outside the University of Minnesota to serve as a member of your examining committee. If interested, discuss the possibility of including an external committee member on your examining committee with your advisor or Director of Graduate Studies (DGS).

The college or graduate program provides you with the ID number for approved external committee members. This ID number is entered when you complete the committee assignment form.

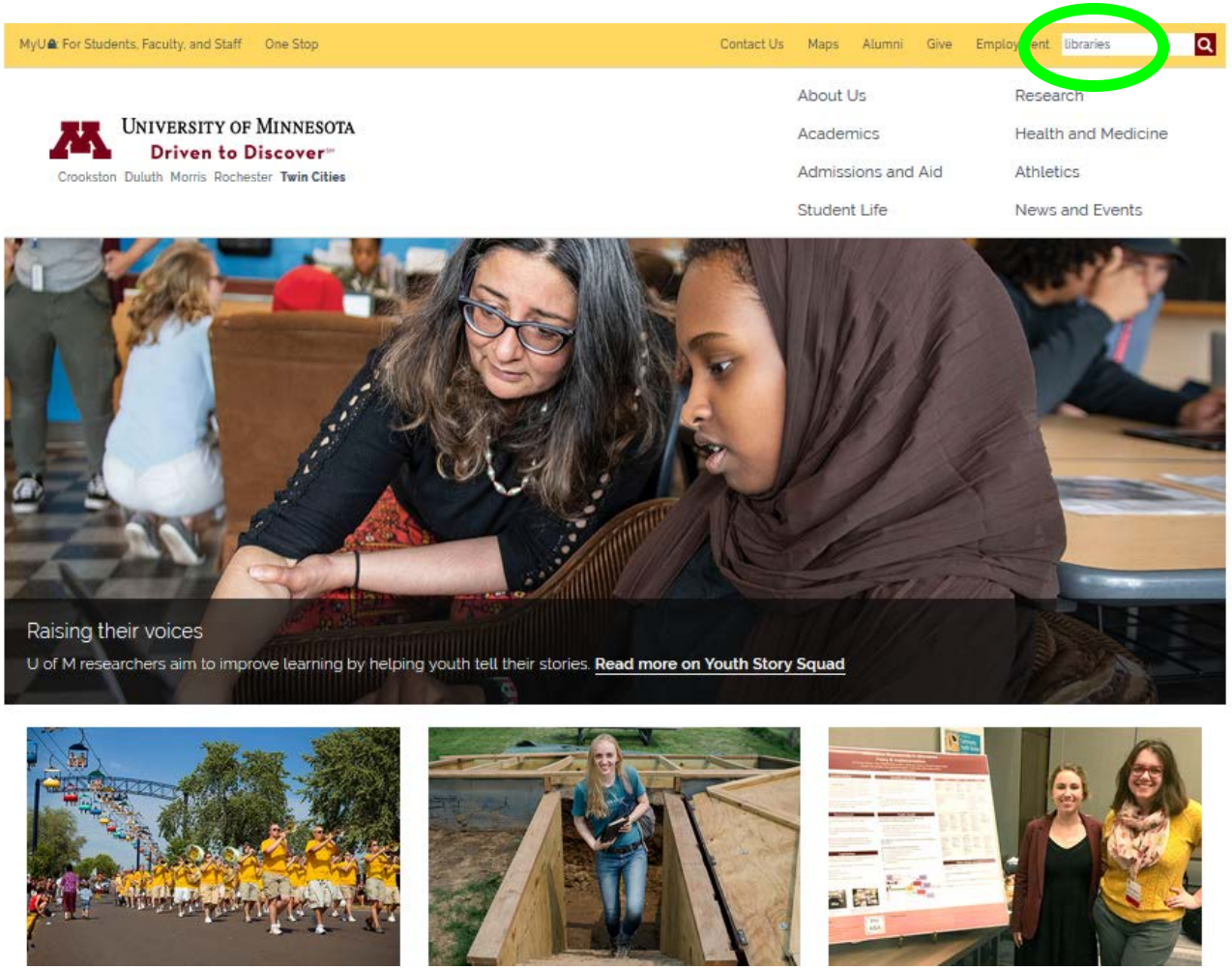
Update an advisor

Updates to an advisor should be submitted at least one month prior to any examination to allow time for processing and changes to the record.

- To request an update to your advisor (or co-advisor) of record, contact your graduate program staff.
    - You will be sent a confirmation email upon approval.
    - After receiving confirmation of your advisor change, please be sure to update any examination committees on record using the appropriate link from **step 4** in the instructions above.

LIBRARY

Library: Search for “Libraries”



http://twin-cities.umn.edu/

Search UMN Twin Cities

libraries

Web | People | Directory

Campus: Twin Cities

About 228,000 results (0.25 seconds) Sort by: Relevance

University of Minnesota **Libraries**
https://www.lib.umn.edu/

The University of Minnesota **Libraries** is the **library** system of the University of Minnesota Twin Cities campus, operating at 13 facilities in and around ...

Research Data Services · University of Minnesota **Libraries**
https://www.lib.umn.edu/datamanagement

Find and access data. We can help you find and access **library** purchased datasets and databases. Image of instructor in computer lab ...

Minnesota Institute for Early Career Librarians
https://www.lib.umn.edu/sed/institute

The Institute focuses on the development of **library** leaders from diverse backgrounds. Participants will develop specific leadership abilities proven to be ...

Publishing Services · University of Minnesota **Libraries**
https://www.lib.umn.edu/publishing

People Search Results

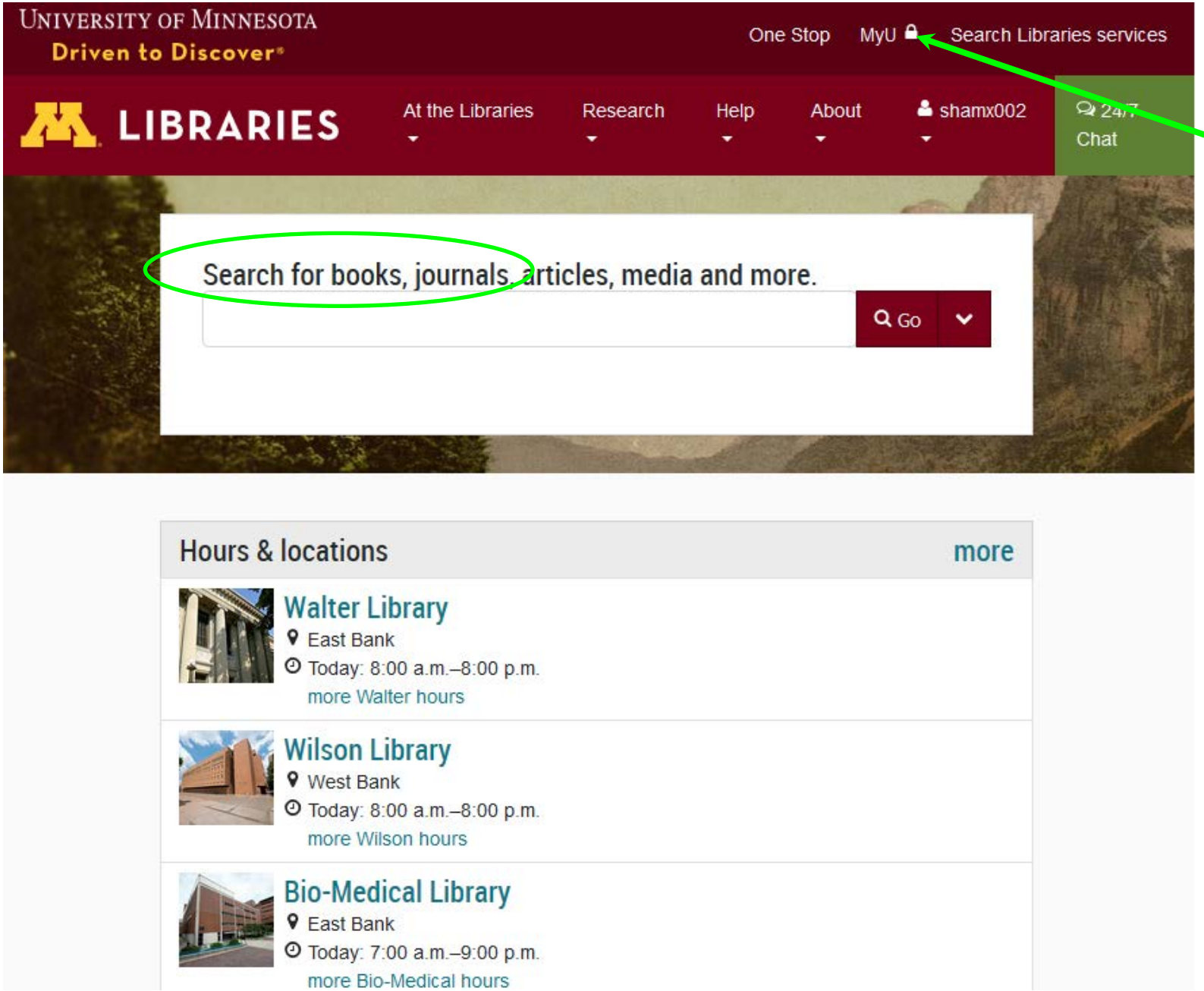
Libraries Instruction (Friend)
Library Data & Technology
instr012@umn.edu

Digital Library Services (Department)
Department
dls@umn.edu

Libraries LRC Electronic Reference Service (Department)
Department

Libraries LRC Tape Copying Service (Department)
Department

Libraries Staff Development and Training (Department)
Department



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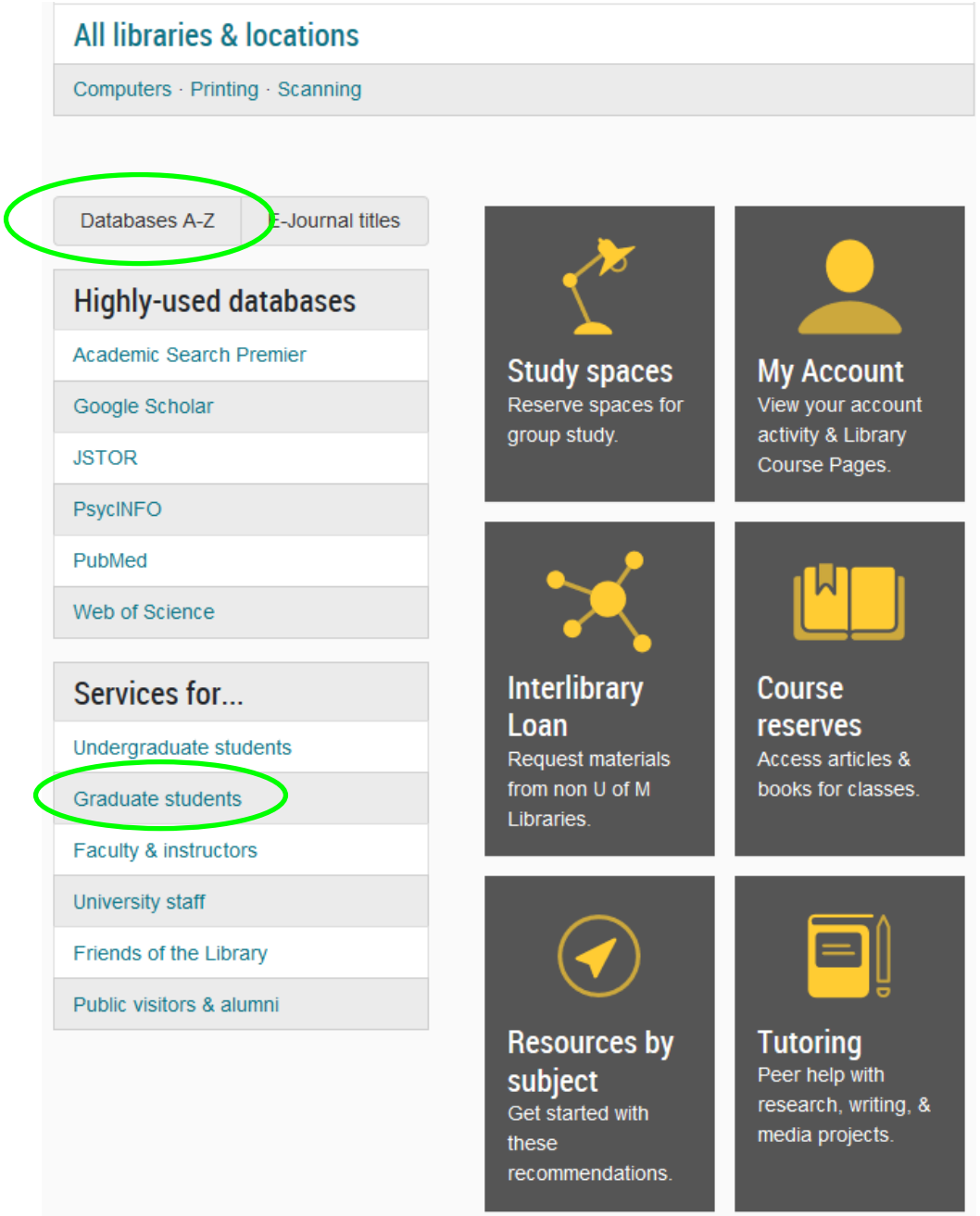

https://www.lib.umn.edu/

General tips for BICB students

- Be sure to register early for classes each semester as they can fill up!
- Register Fall and Spring semester to remain an active student (GRAD999 if you've completed course requirements)
- Complete your annual evaluation each year
- Set clear timelines for academic milestones-- hold yourself to them
- Reach out to us early if you have any issues during your graduate career-- we are here to help!

Transition from an Undergraduate to a Graduate Student

- Still a lot of coursework, but we will not tell you everything you need to know - study materials that are not assigned
- Become an independent learner (read, read and read!!!)
- Project management and time management
- Attend seminars, workshops, symposiums, conferences
- Establish a social and professional network with your colleagues
- Get help with writing: Center for Writing, writing seminars and workshops - Use them! (write, write and write)

Working Professionals/Full-time Parent or Caregiver

- Finances (tuition reimbursement program / Regents scholarship etc.)
  - Flat tuition rate for 6 - 14 credits (full-time student)
- Establish achievable goals
- Time management – schedule study times on weekends and evenings
- Develop a timeline to complete “your” milestones
- Rusty study skills - a myth

10 ways to fail graduate school

- Focus on grades or coursework
- Learn too much
- Expect perfection
- Procrastinate
- Go rogue too soon/too late
- Treat graduate school like school *or* work
- Aim too low
- Aim too high
- Ignore the committee
- Miss the real milestones

Administrative Contacts

Co-DGS

Yuk Sham
shamx002@umn.edu

Chad Myers
chadm@umn.edu