Mathematics Major Resource Summary
Class of 2023

September 4, 2019

Contents

1 Advising and Mentoring

Undergraduate Math Faculty Advisors (for class of 2023):

Primary role: provide advice on which courses to take based on your goals and interests.
Additional role: help with any other academically related questions.
The advisors for the class of 2023 are:

Mark Holmes (student last name A-J): holmes@rpi.edu
Elizabeth Kam (student last name K-Sha): kamw@rpi.edu
Yangyang Xu (student last name She-Z): xuy21@rpi.edu

School of Science (SoS) Advising Hub

Helps with:

- Semester course planning
- Major/minor declaration or changes
- Form approvals
- Arch planning
- Academic issues

Location: Jonsson-Rowland Science Center, room 1C12
Hours: Weekdays 9:00 a.m. - 4:00 p.m.
Phone: (518)276-8079
Email: scienceHUB@rpi.edu

SIS (Important)

Self-Service Information System (SIS): web-based system you can use to access your registration, curriculum, and graduation information. For example, you will use it to register each semester, find your final course grades, and check on your progress satisfying the graduation requirements. Access it at: https://sis.rpi.edu/

Degree Works (Important)

Degree Works is a planning and advising tool that allows you to track the progress you're making toward your degree. You can access it from the main menu of the SIS. A step-by-step reference guide is at: https://info.rpi.edu/degree-works

Student Advisor Meeting (SAM) Holds

You are required to meet with your faculty advisor at least once per year. If you do not do this a Student Advisor Meeting (SAM) hold will be placed on your account and you will be prevented from registering. To resolve this situation, contact your academic advisor immediately. If your advisor is unavailable after repeated contact attempts, go to the SoS Advising Hub (see above).

Useful Things to Know

- Add/Drop info: you have two weeks to add a course and eight weeks to drop one; more info is at https://info.rpi.edu/registrar/registration/#AddDrop
- P/NC: you can take up to 4 courses as Pass /No Credit; more info is at https://info.rpi.edu/registrar/registration/#PassNoCredit
- Forms Provided by Registrar: https://info.rpi.edu/registrar/registration/#RegistrarForms

Summer Arch

- Exceptions are possible for some athletes, ROTC (Air Force and Navy), and a few other cases; the exception form must be submitted between November 4, 2019 and November 29, 2019
- Exception form: https://info.rpi.edu/arch/general-information/#ExceptionProcess
- Early Arch: Some should do Arch between their first and second year; info for this is at https://info.rpi.edu/arch/general-information/#EarlyArch
- If you have questions about Arch, it is recommended you first go to the SoS Advising Hub.

Course Help

1. Instructor and/or TA
2. Undergraduate Learning Assistants (LAs): in first-year residences
3. Drop-In Tutoring: there are tutors for some of the larger 1000/2000 level courses. The rooms and times for each course will be posted at: https://info.rpi.edu/advising-learning-assistance/learning-assistance

2 Mathematics Curriculum

First Year

Fall	**Spring**
MATH-1010: Calculus I	MATH-1020: Calculus II
PHYS-1100: Physics I	HASS Core: Elective
CSCI-1100: Computer Science I	Elective
HASS Core: Elective	Elective
MATH-1900: Art and Science of Math	

Second Year

Fall	**Spring**
MATH-2010: Multivar Calc and Matrix Alg	MATH-2400: Intro to Differential Equations
BIOL-1010: Introd to Biology	MATH-4090: Foundation of Analysis
BIOL-1015: Intro to Biology Laboratory	HASS Core: Elective
HASS Core: Elective	Elective
Elective	

Third Year

Arch Summer	**Fall or Spring**
MATH-4100: Linear Algebra	MATH/P: Capstone I
MATH/P: Option	HASS Core: Elective
HASS Core: Elective	Elective
Elective	Elective

Fourth Year

Fall	**Spring**
MATH/P: Capstone II	MATH/P: Capstone III
MATH/P: Option	Elective
Elective	Elective
Elective	

Comment and Warning

Which semester you take specific MATH/MATP capstone and option courses is unimportant for graduation, you just need to have taken them by graduation. However, be warned that most 4000-level courses are offered only certain semesters, and some are only every-other-year. Also, a few have 4000-level prerequisites. Therefore, it is important that you plan ahead. In fact, this is something you should do starting your first semester at RPI.

Capstone Topic Areas and Courses

Mathematics: MATH 4010, MATH 4020, MATH 4030, MATH 4040, MATH 4120, MATH 4150, MATH 4200, MATH 4210, MATH 4300, MATH 4950

Applied Mathematics: MATH 4300, MATH 4400, MATH 4500, MATH 4600, MATH 4700, MATH 4720, MATH 4740, MATH 4800, MATH 4950

Mathematics of Computation: MATH 4800, MATH 4820, MATH 4840, MATH 4950, MATP 4400, MATP 4820

Mathematics of Operations Research: MATH 4800, MATH 4950, MATP 4400, MATP 4600, MATP 4620, MATP 4700, MATP 4820

Graduation Information

- MATH/P capstone: the three choices must be from one of the above topic areas
- MATH/P option: any course with a MATH or MATP prefix at the 4000 level or above; but no more than one independent study or URP
- P/NC: not be used on any math option or capstone course
- Graduation requirements: 124 credits, minimum 2.0 GPA, no more than 4 P/NC courses

Course Recommendations Based on post-RPI plans

Graduate School in Mathematics: MATH 4100 - Linear Algebra, MATH 4200 - Mathematical Analysis I, MATH 4210 - Mathematical Analysis II, MATH 4300 - Introduction to Complex Variables: Theory and Applications. For pure math you should also take MATH 4010 - Abstract Algebra.

Job (quantitative): MATH 4800 - Numerical Computing, MATH 4840 - Numerical Linear Algebra with Applications, MATP 4450 - Data Analytics, MATP 4820 - Computational Optimization. It is also recommended that you obtain a minor in economics, finance, or computer science.

3 HASS Core Requirements for Incoming SoS Freshmen

The HASS core requirements are:

Integrative Pathway (IP): 12 credits

- List of approved pathways: https://info.rpi.edu/pathways
- **Math Advisor Recommendation:** You must be an effective communicator to be successful, so you should seriously consider pathway *Strategic Communication*
- P/NC: integrative pathway courses can not be P/NC

4000-level HASS Course: 4 credits

Communication Intensive HASS Course: should be within first 3 semesters

- List of Currently Offered CI courses: https://info.rpi.edu/registrar/academic-planning
- P/NC: CI can not be P/NC

HASS Inquiry (IHSS) Course: within first 2 semesters

HASS Core Credit Requirements:

1. 24 credits total
2. A maximum of 12 credits at the 1000-level
3. A maximum of 8 AP or transfer credits
4. A maximum of 8 credits can be designated as P/NC

Resources

- Web-page: https://science.rpi.edu/hub/hass-core-requirements
- Human help: Michelle Riley (rileym3@rpi.edu), HASS Student Services, Russell Sage Labs building, Room 4307

HASS Course Codes: COGS, COMM, ECON, GSAS, IHSS, LANG, LITR, PHIL, PSYC, STSH, STSS, WRIT

4 Dual Majors

Some of the more common dual majors with math are computer science, physics, and economics.

- You may add a dual major after your first semester at RPI.
- It must be approved by the new department; use the Registrar's Form 9, which is titled "Undergraduate Change of Major/Change of Status Form". Once approved you will be assigned an advisor for that major (so you will have two, one for each department).
- The 24 credit mathematics/science requirement and the 24 credit humanities and social sciences requirement satisfy the Institute requirements for both majors.

5 Math Organizations and Related Activities at RPI

- Math Mentors: lead weekly sessions where you provide help in solving calculus problems and give tips on adapting to college life; contact: Prof Piper (piperb@rpi.edu)
- Mathematical Contest in Modeling: international contest involving teams of students to clarify, analyze, and propose solutions to open-ended problems; contact: Prof Kramer (kramep@rpi.edu)
- Putman Competition: pure mathematics competition in North America; contact: Prof Piper (piperb@rpi.edu)
- Problem Solving Club: meets weekly to work on challenging mathematical problems; contact: Prof Piper (piperb@rpi.edu)
- Pi Mu Epsilon: national mathematics honor society; contact: Prof Piper (piperb@rpi.edu)

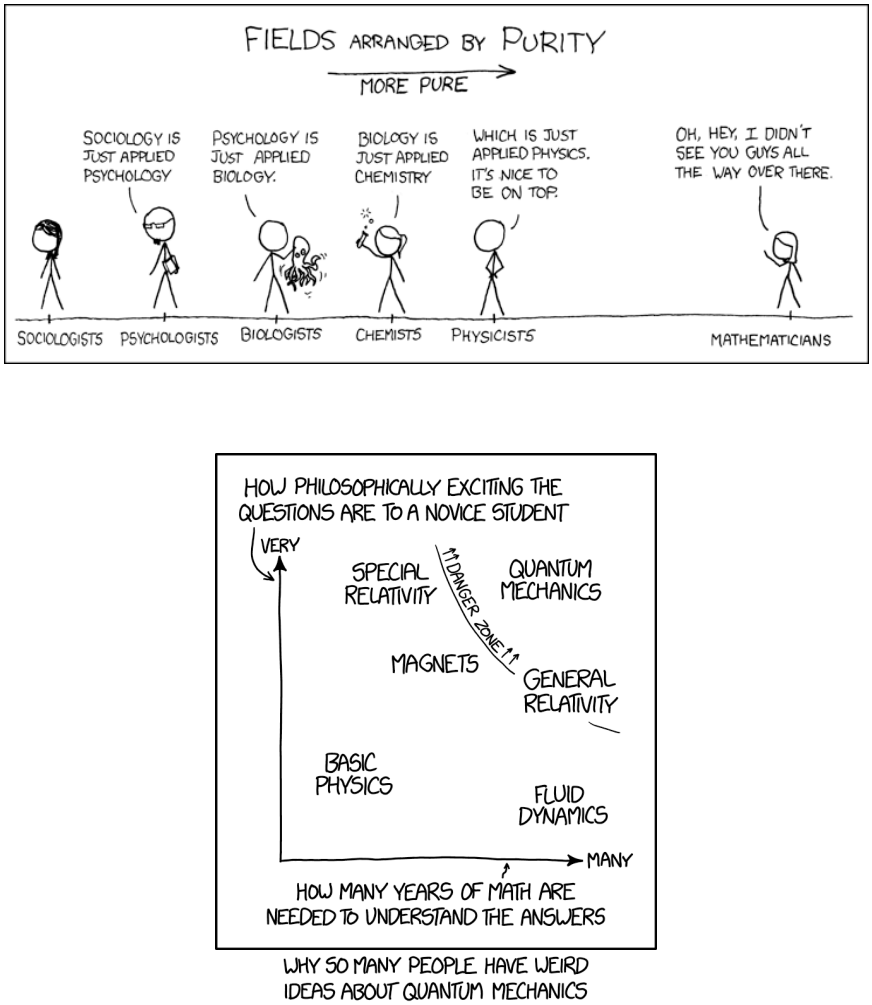

Figure 1: xkcd

6 Department of Mathematical Sciences Directory

Math Department Offices			
Department Head	Donald Schwendeman	schwed@rpi.edu	Amos Eaton 306
Associate Department Head	Bruce Piper	piperb@rpi.edu	Amos Eaton 309
Business Administrator and Assistant to the Head	Michele Kronau	kronam@rpi.edu	Amos Eaton 306
Student Services Coordinator	Dawnmarie Robens	robensd@rpi.edu	Amos Eaton 301
Administrative Specialist	Erin Lynch	lynche2@rpi.edu	Amos Eaton 301

Advisors for Class of 2023		
Mark Holmes	holmes@rpi.edu	Amos Eaton 322
Elizabeth Kam	kamw@rpi.edu	Amos Eaton 407
Yangyang Xu	xuy21@rpi.edu	Amos Eaton 310