THE MATH FELLOWS PROGRAM AT AMHERST COLLEGE

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Contents

1. Overview of the Math Fellows Program 1
2. Readings for the Math Fellows Program 3
3. Academic Support at Amherst College 4
4. Administering the Math Fellows Program 4
References 5
Appendix A. Some Data About Amherst College 5
Appendix B. Expectations for Math Fellows 6

Further Appendices of Local Interest

Appendix C. History of the Math Fellows Program 12
Appendix D. Fellows and Fellows Meetings 2015-18 14

1. OVERVIEW OF THE MATH FELLOWS PROGRAM

The Math Fellows program at Amherst College was created Fall 2015 in response to two developments at the college:

- Soaring enrollments and number of majors in Mathematics.
- Increasing diversity of the Amherst student body.

(See Appendix A for details.) The heart of the program consists of the Math Fellows, a group of undergraduates assigned to specific courses in our curriculum. The Fellows work closely with course instructors and typically hold evening office hours for students in the courses. Some of our calculus sections set aside one day each week for students to work on groups on worksheets. During these class meetings, the instructor and Math Fellow are present to circulate among the groups. Newly selected Fellows are trained in how to hold effective office hours through our Center for Teaching and Learning.

So far, this sounds like a typical undergraduate TA for a course. There are several additional features that give the Amherst program its distinctive flavor. The first involves the training:

- Besides learning about how to conduct office hours, Fellows are introduced to Bloom’s taxonomy of learning (see, for example, [2]). Students often come to office hours and ask questions at a basic level in the taxonomy (“how do I do this problem”). The Fellow needs to be aware that a good
answer requires getting the student to engage the material at a higher cognitive level.

• Fellows also learn about the growth mindset (see, for example, [8]). We want our Fellows to be able to encourage students to adopt an incremental view of their intelligence in math, where working hard can make you smarter. However, it is more than just working hard. Many students come to college thinking of math in terms of performance goals, while the growth mindset is most effective when coupled with learning goals. It is important for the Fellows to understand this distinction.

This training not only helps the Fellows be more effective in working with students but also helps the Fellows become better students themselves. This is one of the explicit goals of the program.

Here are some other features of the Math Fellows program:

• The Fellow for a particular course has usually previously taken the course, often using the same book and sometimes even from the same instructor. The Fellow knows when assignments are due and when exams will be held. They have the ability to email the class about changes in office hours or extra review sessions.

• The Fellows program covers calculus, 200-level courses where students do proofs for the first time (linear algebra and discrete math), and 300-level core theory courses (abstract algebra and introductory analysis). This is critical to supporting our diverse group of majors as they progress through the math curriculum. We sometimes use Fellows in other upper-level courses when enrollments are unusually large.

• Besides office hours and worksheet sessions in some calculus courses, Fellows sometimes interact with students in other ways. For example, the Fellow for our applied linear algebra course often attends lab sessions for the course, and the Fellows for discrete math and linear algebra sometimes conduct proof workshops in the evenings.

• Many Fellows participate in the program for multiple semesters. They often begin as Fellows for calculus courses but then shift to being Fellows for 200- or 300-level courses. These students enjoy seeing the different kinds of questions that get asked in higher level courses.

The final component of the Math Fellows program happens twice a semester when the Fellows meet as a group. A typical Fellows meeting has two items on the agenda:

• A discussion of how their office hours are going. A Fellow will often ask the others for advice on how to handle questions of various sorts. This can lead to some fascinating conversations.

• Every Fellows meeting has an assigned reading. Some of the readings go deeper into Bloom’s taxonomy or the growth mindset. Other readings touch on how to be sensitive to the wide diversity of students who take math courses. These readings are central to the Math Fellows program and are described in more detail in Section 2.

We have occasional guests at the meetings, such as staff from the Center for Teaching and Learning or the Education Professions Program. Sometimes the guest is a faculty member who is familiar with the reading being discussed.
Being a Math Fellow gives our students the opportunity to see why we love teaching so much. For some of them, it confirms their decision to go to graduate school in mathematics. When writing a letter of recommendation for a Math Fellow, it is easy to say that here is someone who will make a splendid TA!

Buffy Aries, a faculty member in Psychology, attended a Math Fellows to lead a discussion based on a chapter from one of her books (see Section 2). Here is what she said about the meeting:

... the Fellows themselves are truly inspiring. The students were so committed to figuring out the best ways to help others. They provide a wonderful array of role models for students who are struggling in math. I’m sure the Math Fellows program has been instrumental in many students continuing on in math who might otherwise have become discouraged and discontinued. Other departments could learn a lot from what your department is doing so successfully.

2. Readings for the Math Fellows Program

Readings for the Math Fellows program need to be short and pithy since students have busy lives. Being a Math Fellow is a job that students do on top of a full course load. It is a good job—they get paid for their office hours and other course-related activities, and they also get paid to attend the Math Fellow meetings. Attending Math Fellow meetings and doing the readings is an explicit expectation of being a Math Fellow (see Appendix B).

The readings we use are usually in flux. The Math Fellow Coordinators (more on this in Section 4) are always on the lookout for new readings, and we sometimes retire readings that are less successful or out-of-date.

Here are some of our current readings, along with comments about why we chose each reading:

- **Studying Students Studying Calculus** by Uri Treisman [7]. This classic article describes the experiences that led Treisman to create the Professional Development Program at Berkeley and the Emerging Scholars Program at the University of Texas. For the Fellows, this article shows some of the behaviors that can prevent smart students from succeeding in a math course. At Amherst, our calculus sections that use worksheets were inspired by Treisman’s work.

- **The Mentor’s Dilemma** by Geoffrey Cohen, Claude Steele and Lee Ross [4]. Another classic article that explores how giving feedback requires sensitivity to race. It is important for Fellows to know how to react appropriately to mistakes students make during their office hours.

- **Reducing the Effects of Stereotype Threat on African American College Students by Shaping Theories of Intelligence** by Joshua Aronson, Carrie Fried and Catherine Good [3]. This fascinating article studies stereotype threat and the growth mindset, and illustrates how having college students foster the growth mindset in others (as our Fellows do) can have a positive effect on the students themselves.

- **What the Privileged Poor Can Teach Us** by Anthony (Tony) Jack [6]. Being aware of race is not enough given the complexities of different racial communities. Tony explains how lower-income black students may have
different college experiences depending on the type of high school they attended. The point for our Fellows is to avoid making assumptions when dealing with students in office hours. Tony went to Amherst and was a Fellow in an earlier incarnation of the Fellows program.

- *Speaking of Race and Class* by Elizabeth (Buffy) Aries and Richard Berman [1]. This book is particularly relevant to Amherst since it follows four groups of students (affluent white, poor white, affluent black, poor black) during their time at the college. The Fellows read Chapter 6, “Black and White: Seeing Race Anew”, which explore how the four groups interacted with each other and with the larger student body. The lesson again is to avoid making assumptions. Buffy teaches at Amherst and led the discussion when this reading was assigned for a Math Fellows meeting.

- *Why We Need a ‘Scholarship of Belonging’* by Julio Frenk [5]. As student populations get more diverse, it is becoming increasingly difficult for all students to feel that they belong. When students feel they don’t belong, they are less likely to seek out academic support. Fellows need to realize the importance of outreach and creating a welcoming atmosphere.

We have tried several readings that describe the growth mindset but have yet found one that is fully successful.

3. **Academic Support at Amherst College**

The Math Fellows program is closely allied with the Moss Quantitative Center at Amherst (QCenter for short). The QCenter provides academic support in all quantitative disciplines. As of next year, the QCenter will have three staff members who work with students in math courses:

- A Math Associate (with a BA in math) who provides support for calculus courses. This is a long-term position.
- A Math Associate (with a PhD in math) who provides support for upper level math courses. This is a long-term position shared between the QCenter and the Department of Mathematics & Statistics.
- A Math QFellow (a recent graduate of the College) who provides support for upper level math courses. Math QFellows typically hold the position for a year, sometimes two, before pursuing other interests.

Staff at the QCenter are usually available during the day, with a mixture of drop-in hours and individual appointments. In contrast, our Math Fellows hold most of their office hours during the evening.

Between the QCenter, the Math Fellows, and the faculty (who have ample office hours), math students at Amherst have access to a wide range of support.

4. **Administering the Math Fellows Program**

As the Math Fellows program has grown at Amherst, so has its administrative burden and cost. For the latter, we are grateful to the Dean of the Faculty, who has supported the program as part of Amherst’s commitment to increase the number of STEM majors from underrepresented groups.

Starting next year, the program will be run by two Math Fellow Coordinators, a faculty member from the Department and the PhD Math Associate from the QCenter mentioned in Section 3. Here is a list of what is involved:
• Recruit new Fellows as needed in consultation with course instructors.
• At the beginning of each semester, create a webpage for the Fellows program for that semester. The webpage includes the Fellows, the courses they are attached to, the instructors, the QCenter staff, the STEM specialist in the Center for Teaching and Learning, and links to the readings.
• Update the Expectations for Math Fellows document (see Appendix B) that is sent to all Fellows.
• Coordinate with the Center for Teaching and Learning to ensure that new Fellows get the training they need.
• Coordinate with the QCenter so that the Math Fellows and QCenter staff work together effectively in delivering academic support.
• Monitor the number of hours each Fellow spends on office hours and other course-related activities.
• Schedule and run the Math Fellow meetings. This includes choosing a reading for each meeting and inviting occasional guests to attend.
• Find new readings for the Math Fellows.
• Conduct periodic surveys of Fellows (to find out what works and what doesn’t) and math students (to provide feedback to the Fellows and the Department).

Some of this work is done by the Math Associate and some by the faculty member. It is important that math faculty be actively involved in the Math Fellows program.

REFERENCES


APPENDIX A. SOME DATA ABOUT AMHERST COLLEGE

Within the last decade, Amherst College has profoundly transformed its student body in terms of socioeconomic status, ethnicity, and nationality, among other areas. Today, nearly one-quarter of Amherst’s students are Pell Grant recipients; 44 percent of our students are domestic students of color.

The Department of Mathematics & Statistics has separate majors in mathematics and in statistics. Enrollments in math courses have increased dramatically in the last decade:
The same is true for the number of math majors:

**APPENDIX B. EXPECTATIONS FOR MATH FELLOWS**

On the next page is the current version of the document that we give to all new Math Fellows. The document describes the duties and expectations of being a Fellow and includes advice about practical matters like timesheets and confidentiality, along with suggestions for how to conduct effective office hours.

This document is updated on a yearly basis.
Expectations for Math Fellows

Department of Mathematics & Statistics, Amherst College

Congratulations on your selection as a Math Fellow! It is our hope that being a Math Fellow will not only provide valuable help to the students you work with but also help you become a better learner yourself and get a better understanding of your fellow students.

This document will lay out the duties of a Math Fellow and discuss how many hours per week are involved. We also give some tips for how to run effective office hours.

Guidelines and Duties for Math Fellows

- Frequent contact with the course instructor is important.
- Before the semester begins, get a clear sense of how you will be involved in the class. For Math Fellows, there are many ways this can happen:
  - Holding evening office hours each week is typical.
  - For some courses, in-class time is important, especially in Math 105, 106 and 111i. For others, in-class time is infrequent (being present during a worksheet on proofs, for example). There are also many courses where in-class time never happens.
  - There may be occasional evening events in addition to office hours, such as review sessions for exams or proof workshops.
- When deciding which days to hold office hours, consult with the instructor to find out when homework will be due. Contact the Department Coordinator in SM 202 to arrange for classroom space to hold your office hours in.
- When office hours occur the night before homework is due, be sure you have a copy of the assignment. Similarly, if you run a review session, be aware of the review material the instructor has made available to the class.
- If the instructor has a Moodle site, ask to be listed as a TA so you can see the site and email the class. For instructors who post HW on Moodle, this is a good way to keep up with the current assignments.
- If your schedule permits, visit the class during first week of the semester to introduce yourself to the class.
- Encourage students to use the QCenter. For calculus courses, you should know the schedule of Tim St. Onge. For upper level courses, know the schedule of Daniella Bennett and Andrew Miller.
- If you don’t have copy of book for the course, see the Department Coordinator in SM 202 to get a copy.
- Please check your email regularly. This is how most faculty communicate with Math Fellows.
- Attend the Math Fellows meetings, which are held twice a semester at 8 am. This is where you deepen your knowledge about office hours and get a better sense of the issues involved in effective tutoring. Fellows meetings will be announced a week or two in advance by email.

Please remember even though being a Math Fellow is a important job, it should not get in the way of your primary goal of being a student. If your work as a Math
Fellow interferes with your coursework, please contact your instructor or David Cox, the Math Fellow coordinator, as soon as possible.

Number of Hours per Week and Timesheets

For most Math Fellows, the expectation is four hours per week. If you are doing something extra (review session or proof workshop), then you get paid for this on top of your office hours. You also get paid for attending the Math Fellows meetings. Some Math Fellows will consistently have more hours because of weekly in-class worksheets in addition to office hours. The Math Fellow coordinator will periodically review the timesheets to check on the number of hours charged.

If you have not already done so, please obtain a work authorization form from the Office of Financial Aid. Once that is done, please visit the Department Coordinator in 202 Seeley Mudd in order to arrange the periodic reporting of the hours you have worked, so that you can be paid. The pay scale is $12 per hour.

Be aware that misreporting hours on a timesheet is regarded as theft of College property, which violates the Student Code of Conduct and the Employee Handbook. Consequences range from restitution and loss of position all the way to removal from the College in severe cases. Please be careful in filling out your timesheets.

FERPA and Confidentiality

The Family Educational Rights and Privacy Act is a federal law that protects the privacy of students. When interacting with students during office hours, FERPA means that you should treat these conversations as confidential. You can share information with the instructor but if you want to tell other Math Fellows about something that happened in office hours, you need to do so in a way that not reveal the identity of the student. The same applies to Math Fellow meetings.

In particular, you never reveal what happens in office hours to another student, even for things that seem trivial or amusing. Hurtful behavior has occurred in the past when Fellows violated confidentiality by telling what they thought were funny stories about students in office hours.

Respect the Learning Process

Sometimes a student asks a question that sounds trivial or obvious to you. But to the student, this might not be the case. Be sure to respect where the students are in their educational journey. Your job is to support this journey.

Peer Tutors

Besides the office hours you provide and the support provided by the QCenter, another resource available to students is the peer tutoring program, where a student works one-on-one with a peer tutor for up to three hours per week. If you encounter a student who struggling with the course in general or with certain specific topics, you might want to suggest to the course instructor that the student might benefit from a peer tutor. Be sure to contact the instructor before the student initiates the process of obtaining a peer tutor.
Once the tutoring begins, it should be done in addition to attending office hours of the Math Fellow on a regular basis. In other words, peer tutoring should not be used as a replacement for office hours with the Math Fellow. Any exception to this requires the explicit permission of the instructor.

Learning and Teaching During Office Hours

Here we give some tips for how to run effective office hours. This material is based on the work of Linda Acitelli, Beverly Black and Elizabeth Axelson at the Center for Research on Learning and Teaching at the University of Michigan.

Teaching Students to Solve Problems

When a student comes to you during office hours and says “I don’t get it,” what do you do? The most natural response might be to try to find out more specifically what the student doesn’t understand and explain or demonstrate it to the student. Although the student may also expect this, it may not always be the most effective way to help. The student may listen to the explanation or watch as you work the problem and may go away thinking the problem is understood. And, in fact, that particular problem may be understood, but when asked to do a similar problem on a test, the student has difficulty. There are a variety of reasons a student might be having difficulties in solving problems. The sources and types of errors a student may have are listed below.

Sources and Types of Errors in Problem Solving

Inaccuracy in reading

- reading the material without concentrating strongly on its meaning
- skipping one or two unfamiliar words
- losing one or more facts or ideas
- failing to reread a difficult section
- starting to work the problem before reading all of the material

Inaccuracy in thinking

- starting to work the problem before reading all of the material
- not placing a high premium on accuracy (above speed or ease)
- not taking enough care in performing some operation
- interpreting words or performing operations inconsistently
- not checking a formula or procedure when feeling some uncertainty
- working too rapidly
- drawing conclusions in the middle without sufficient thought
- analyzing problems inactively
- failing to break a complex problem into parts; not using the parts that are understood to figure out more difficult parts
- not drawing upon prior knowledge and experience in trying to make sense of ideas that are unclear
- not actively constructing a representation of ideas on paper (when a representation would have helped in understanding the material)
- lacking perseverance
- lacking confidence and giving up easily
• choosing an answer based on a superficial consideration of the problem
  (having a feeling of what might be correct – guessing)
• solving the problem in a mechanical manner without much thought
• reasoning the problem part way through, giving up, and jumping to a
  conclusion
• using the “one shot” approach in solving the problem and when that doesn’t
  work giving up

How You Can Help

Students need training and practice in problem solving. To make teaching during
office hours more effective you must make it student oriented instead of teacher
oriented. Your goal is not to show them how to do problem number two, but
to teach them how to go about solving problems and how to think while solving
problems. In other words, you must get students to do the thinking and help them
modify their thinking by having them slow down and use good problem solving
techniques. Here are some ways to get students to slow down and reflect on their
thinking processes when solving a problem:

• Have students read the problem aloud and tell you what is needed to solve
  it before they start to work on the problem.
• Get students to work problems while “thinking out loud.” Encourage stu-
dents to constantly talk about what they are doing and why. This will slow
down the thinking process and make it more explicit and more accurate.
You can often help students check their own reasoning and find their own
mistakes by having them express exactly what they know about a problem.
Comments or questions that can help students clarify their thinking might
include some of the following:
  – What are some possible ways you might go about solving this problem?
  – Tell me what you know about the problem.
  – How might you break the problem into small steps?
  – Please tell me how you got from step one to step two?
  – What are you thinking right now?
  – I don’t understand your reasoning behind that step. Will you please
    explain?
• Sometimes you will find it necessary to model good problem solving tech-
niques. You may have to demonstrate how you would go about reading and
understanding a question before starting to work the problem. You may
show how you would solve the problem, making the process clear to the stu-
dent (e.g., working step-by-step, backing up if necessary when things don’t
work out, breaking a complex problem into parts and using the parts you
understand to figure out the more difficult parts, actively constructing a
representation of ideas on paper, etc.). After modeling the process, require
students to work through a similar problem to make sure they understand
the process.

Working with individual students is an extremely effective way of teaching and is an
important part of your responsibilities as a Math Fellow. One of the most beneficial
aspects of office hours is the opportunity to hear individual students practice talking
(or thinking aloud) about the material. This will give you a chance to know how
students think, what they understand, and to know their strengths and weaknesses in working with the material of the course.

**References**


Acitelli, L.K. (2000). *Learning and teaching during office hours*. GSI guidebook (7th ed.). Ann Arbor, MI.: Center for Research on Learning and Teaching, University of Michigan at Ann Arbor. See the webpage [http://crlt.umich.edu/gsis/p4_5](http://crlt.umich.edu/gsis/p4_5)

Thanks to Amy Wagaman for bringing this material to our attention. She was a graduate student at Michigan.
Here are two further appendices that give more details about how the Math Fellows program evolved and what happened each semester during the first three years of the program.

APPENDIX C. HISTORY OF THE MATH FELLOWS PROGRAM

The Math Fellows program began modestly. In the late 1990s, the College adopted the idea of Lecture TAs. These were student TAs assigned to give coursespecific academic support to certain STEM courses. In particular, we began using Lecture TAs in Math 105 and 106, a year-long sequence that covered the equivalent of Math 111 (our version of Calc I) for students who were not ready for our standard calculus sequence. Math 105 and 106 had weekly worksheet sessions. The Lecture TAs attended the worksheet sessions and held evening office hours.

In the early 2000s, several departments created “intensive” sections of their introductory courses that used a different pedagogy to help students whose admission profile indicated that they would struggle in standard sections of the introductory courses. In math, Math 111i (the intensive section of Math 111) adopted the worksheet model used in Math 105 and 106. The first lecture TA for Math 111i was Tony Jack, whose New York Times Op-Ed piece [6] is now one of the readings for the Math Fellows.

The next stage in the evolution began in Spring 2014, when a potential donation from Dan Feldman ’58 sparked the idea for an “army of tutors” in mathematics and statistics. Our enrollments and the numbers of majors were growing rapidly at the time (see Appendix A), and we realized that extra support was needed for students in 200- and 300-level courses.

In statistics, things moved rapidly, with the “army of tutors” morphing into the Statistics Fellows program that began in Fall 2014. The Stat Fellows worked on small research projects and provided drop-in tutoring for introductory statistics courses. Initially a small pilot program was funded by the Dean of the Faculty, with money from David Rosenblum ’92 arriving shortly thereafter to fund the program.

Things were also happening on the math side. In November 2014, we began working with Foundation and Corporate Relations on a potential grant from the Hearst Foundation. The idea of a Math Fellows program to parallel the Statistics Fellows program seemed natural, and we developed a proposal that was eventually submitted in Spring 2015, to begin in January 2016. The same Spring, consultations with Dan Feldman led to a donation that was used to fund a Math QFellow in the QCenter for two years. We hired Zalia Rojas ’15 later in the Spring. Her mandate was to support students in 200- and 300-level courses.

We also realized that the Math Fellows program needed to start immediately. Tentative steps were taken in Spring 2015 with the use of Lecture TAs in selected sections of Math 121 (Calc II) and 211 (Calc III). We also wrote a modest proposal for Fall 2015 to cover three calculus courses (Math 105, 111i and 121), with the remaining calculus courses to be served by the QCenter. The existing Lecture TAs were renamed Math Fellows, and we also requested funding for Math Fellows for Math 220 (discrete math) and 271 (linear algebra). These are courses where students see proofs for the first time.

The Dean of Faculty funded our pilot program, so the Math Fellows program was officially launched in September 2015 with an inaugural group consisting of five Fellows (see Appendix D for a complete list of all Fellows for 2015-2018). The
Fellows meetings in Fall 2015 featured some of the first readings but were only 30 minutes long due to scheduling constraints.

The Hearst Foundation declined to fund our proposal, but fortunately we were allowed to increase our Department budget to cover the cost of the Fellows program. In Spring 2016, we continued with five Math Fellows, covering the same courses. The only Math Fellows meeting this semester was held at 8 am so everyone could attend. This is now the standard meeting time for Math Fellow meetings.

In Fall 2016, the website for the Fellows program was created (there is now a separate page for each semester), and we expanded the Fellows program to include Math 350 (abstract algebra) and 355 (introductory analysis). We now had a group of nine Math Fellows. There were also four drop-in tutors in the QCenter who covered Math 111 and 211. All were invited to attend the Math Fellow meetings, which is why we decided to have separate meetings for Calculus Fellows and Upper Level Fellows. Another new feature of Fall 2016 was the presence of guests at the Math Fellows meetings. This began our connection with the Center for Teaching and Learning (then called the Teaching and Learning Collaborative).

In January 2017, we wrote the *Expectations for Math Fellows* that appears in Appendix B and sent it to the ten Fellows for Spring 2017, one more because we added Math 272 (applied linear algebra). The first Fellows meeting discussed the *Expectations* with help from the Teaching and Learning Collaborative. A guest from the Education Professions Program attended the second Fellows meeting.

For the first two years of the Math Fellows program, the Department selected the Fellows in consultation with the course instructors. This had some advantages, since we could pick students who had good people skills and knew the material, and we could ensure the diversity of the Math Fellows. But we feared that we would miss some students this way. So for Fall 2017, we created an application process where students would submit a personal statement, resume, transcript, and names of two faculty to write brief emails of recommendation.

We have now done this application process twice (Spring 2017 and Spring 2018). We have gotten some truly excellent Math Fellows this way, but the diversity has suffered. We need to find a way to ensure that the diversity of the Fellows matches the diversity of our students. For example, we could do more to encourage students to apply. Or we might allow faculty to nominate Fellows directly. This is something the Department needs to think about carefully.

In Fall 2017, we had a group of 14 Fellows, with another four hired by the QCen ter to cover Math 111 and 211. One course we added to was Math 360 (probability). The most memorable meeting was in November, when Buffy Aries led a discussion based on material from her book [1]. Another feature of this semester is that new Fellows participated in training session conducted by the Center for Teaching and Learning in September.

In Spring 2018, we added two new courses, Math 250 (number theory) and 260 (differential equations), partly to provide slots so that all Fellows from the Fall could continue in the Spring.

In Fall 2018, we will have 18 Fellows. We have now replaced all of the drop-in tutors at the QCen ter with Math Fellows, though the QCen ter continues to pay the salaries of the Fellows for Math 111 and 211. Allison Tanguay will be joining the College as a Math Associate in August 2018, and being a Math Fellow Coordinator (along with David Cox) is part of her job description.
APPENDIX D. FELLOWS AND FELLOWS MEETINGS 2015-18

Fall 2015

**Math Fellows (5)**
Math 105: Yariana Diaz  
Math 111i: Omar Pineda  
Math 121: Obinna Ukogu  
Math 220: Sam Lawlor  
Math 271: Cole Hawkins

QCenter  
Math Associate: Tim St. Onge  
Math QFellow: Zalia Rojas  
QFellow: Owen Marschall

**Meetings**
Fri, Sept 11, 1-1:30 pm. Welcome and introduction.  
Fri, Oct 16, 1-1:30 pm. Reading: *What the Privileged Poor Can Teach Us* [6]  
Fri, Nov 13, 1-1:30 pm. Reading: *Self-Theories: Their Role in Motivation, Personality and Development* (no longer used).  
Fri, Dec 4, 1-1:30 pm. Discussion of the Amherst Uprising.

Spring 2016

**Math Fellows (5)**
Math 106: Yariana Diaz  
Math 111: Omar Pineda  
Math 121: Obinna Ukogu  
Math 220: Paul McClean  
Math 271: Cole Hawkins

QCenter  
Math Associate: Tim St. Onge  
Math QFellow: Zalia Rojas  
QFellow: Owen Marschall

**Meetings**
Tues, Mar 29, 8-9 am. Reading: Material on office hours from the University of Michigan, now included in the *Expectations for Math Fellows* (see Appendix B).

Fall 2016

**Math Fellows (9)**
Math 105: Michael Barnett  
Math 111i: Chelsea Nkansah-Siriboe  
Math 121: Denise Noriega and Obinna Ukogu  
Math 220: Yariana Diaz  
Math 271: Toby Schwed
Math 350: Paul McClean
Math 355: Chris Baldi and Emily Masten

QCenter
Math Associate: Tim St. Onge
Math QFellow: Zalia Rojas
Math 111/211: Konso Mbakire, Daniel Navas, Alex Santos and Kelly Twombly

Meetings:
Wed, Sept 21, 8-9 am (Calculus Fellows) and Fri, Sept 23, 8-9 am (Upper Level Fellows). Reading: Online videos Growing Your Mind and Neuroplasticity (no longer used).
Wed, Nov 30, 8-9 am (Calculus Fellows) and Fri, Dec 2, 8-9 am (Upper Level Fellows). Reading: The Mentor’s Dilemma [4]. Guests: hari kumar and Riley Caldwell-O’Keefe, Teaching and Learning Collaborative.

Spring 2017

Math Fellows (10)
Math 106: Michael Barnett
Math 111: Chelsea Nkansah-Siriboe
Math 121: Denise Noriega
Math 220: Yariana Diaz
Math 271: Rosy Rohling and Obinna Ukogu
Math 272: Shelly Tang
Math 350: Fernando Liu Lopez
Math 355: Chris Baldi and Emily Masten

QCenter
Math Associate: Tim St. Onge
Math QFellow: Zalia Rojas
Math 211: Konso Mbakire

Meetings:
Wed, Feb 8, 8-9 am (Calculus Fellows) and Fri, Feb 10, 8-9 am (Upper Level Fellows). Discussion of office hours and Bloom’s taxonomy. Guests: hari kumar and Riley Caldwell-O’Keefe, Teaching and Learning Collaborative.
Wed, Apr 19, 8-9 am (Calculus Fellows) and Thurs, Apr 20, 8-9 am (Upper Level Fellows). Reading: Reducing the Effects of Stereotype Threat on African American College Students by Shaping Theories of Intelligence [3]. Guest: Robert Siudzinski, Education Professions Program.

Fall 2017

Math Fellows (14)
Math 105: Amos Tuwei
Math 111i: Michael Barnett
Math 121: Alexandra Gomez and Denise Noriega
Math 220: Katherine Finnerty and Chelsea Nkansah-Siriboe
Math 271: Yariana Diaz
Math 272: Jennifer Cain
Math 350: Fernando Liu Lopez, Konso Mbakire and Rosy Rohling
Math 355: Obinna Ukogu and Bowen Yang
Math 360: Fengling Hu

QCenter
Math Associate: Tim St. Onge
Math QFellows: Daniella Bennett and Andrew Miller
Math 111: Sean Garcia and Allison Randy-Cofie
Math 211: Adil Chhabra and Anna Makar-Limanov

Meetings:
Wed, Sept 20, 8-9 am (Calculus Fellows) and Fri, Sept 22, 8-9 am (Upper Level Fellows). Reading: Studying Students Studying Calculus [7]
Wed, Nov 29, 8-9 am. Reading: Speaking of Race and Class [1]. Guest: Buffy Aries, Department of Psychology.

Spring 2018

Math Fellows (13)
Math 106: Alexandra Gomez
Math 111: Michael Barnett
Math 121: Margaret Medina-Pena and Joe Schneider
Math 211: Jennifer Cain
Math 220: Katherine Finnerty
Math 250: Alexander Thrane
Math 260: Yariana Diaz
Math 271: Fernando Liu Lopez and Denise Noriega
Math 272: Rosy Rohling
Math 350: Alex Santos
Math 355: Obinna Ukogu

QCenter
Math Associate: Tim St. Onge
Math QFellows: Daniella Bennett and Andrew Miller

Meetings:
Wed, Feb 14, 8-9 am. Reading: Introduction to the Growth Mindset (no longer used) and Growth Mindset Perils (no longer used). Guest: Riley Caldwell-O'Keefe, Center for Teaching and Learning.
Wed, April 18, 8-9 am. Reading: Why We Need a ‘Scholarship of Belonging’ [5]