

**UNIVERSITY OF MICHIGAN**  
**College of Engineering**  
**Curriculum Committee Meeting**  
**Tuesday, March 21, 2023**

**Attending:** Xiaogan Liang (Chair), Robert Bordley, Yavuz Bozer, Annouck Girard, Roman Hryciw, Xianzhe Jia, Amir Kamil, Leena Lalwani, Yulin Pan, Kathleen Panagis, Ken Powell, Eric Rutherford, Rachael Schmedlen, Katie Snyder, Roxanne Walker, Steven Yalisove, Won Sik Yang

**Support Staff:** Stacie Benson, Mercedes Carmona, Betsy Dodge, Matt Faunce

**Call to Order: 1:34 PM**

**Adjourned: 2:20 PM**

**AGENDA**

1. Approval of 3.7.2023 Meeting Minutes (Page 2) - **APPROVED**
2. Robotics Undergraduate Program Modification -Action Item (Page 4) – **APPROVED**
  - a. The Robotics Undergraduate Program has modifications to be made for the following 2023-2024 academic year which are:
    - i. Renaming our Kinematics and Dynamics Discipline Depth to Dynamics and Mechanics
    - ii. Moving MECHENG 360 from our Kinematics and Dynamics requirement to Flexible Technical
      1. MECHENG 240 is one of the courses which satisfies the programs Kinematics and Dynamics section of the Discipline Breadth Requirement. MECHENG 240 is an enforced pre-req from MECHENG 360, which means students would not be able to enroll in MECHENG 360 without having completed MECHENG 240. This is the reason in which MECHENG 360 needs to be moved to a Flexible Technical elective.
    - iii. Adding 400-Level PHYSICS courses as Flexible Technical Electives
  - b. All changes will be reflected to students and the modifications made will better reflect what this program has to offer.
3. Updated Y-Grading Policy from the RO Curriculum Office – Informational Item (Page 6)
  - a. Lisa Emery - Senior Associate Registrar - from the RO Curriculum Office has notified the CoE Registrar Office regarding Y-grading that: “students should receive credit in the same term that the course work is being done,” as U of M wants to move away from the Y-Grading altogether.
  - b. The RO Curriculum Office recognized the rare instances in which Y-Graded classes registration was in the Fall and grades weren’t finalized until Winter. The preferred set up is to have half of the credits in the first term, the other half of the credits set up for the following term and make the course repeatable for the total number of credits for the course.
  - c. Discussions are currently ongoing as to what this means for current classes as there are a lot of CoE courses, such as graduate and capstone courses, that will be affected if there were a change to be implemented to Y-Grading. As of now, per Betsy, there will be no changes to past courses and only new courses will implement the change of no grading basis of Y-Grading.
  - d. A question was raised about modifications and how that is affected by Y-Grading. Course modifications can be made, but not to change the course grading basis to Y-Grading as the university is moving away from this grading system as much as possible.
  - e. The RO Curriculum Office will continue discussions with Y-Grading with current courses as there will be other factors to consider such as federal and state requirements and funding. Betsy will keep the CCC updated with any official changes made regarding Y-Grading and current courses.
4. CCC Meeting Schedule for 2023-2024 Academic Year Final – Informational Item (Page 7) - **APPROVED**
  - a. The CCC Meeting Schedule for the next school year was approved by CoE leadership, Lola and Kevin’s office.
  - b. Future discussions will be had for the next academic school year, 2024-2025, as there should be consideration to move the meeting date from Tuesday to another day during the week if possible, for those that teach or have other conflicts with the current Tuesday meeting day.

5. LSA/CoE Joint Meeting Cancelled. In place of that meeting, there will be one more CCC meeting on April 4 from 1:30-3PM.
- a. Does the CCC want to weigh in/discuss the divergent declaration requirements between departments?
    - i. The committee said that they did want to explore this further and agreed that it will be discussed at the next meeting.

**CARF SUMMARIES**

PAGE	SUBJECT	COURSE #	ACTION	SUMMARY	EFFECTIVE TERM	MIN. GRADE REQ. FOR ENF. PREPREQ	APPROVED	NOTES & REVISIONS	TABLED
8	BIOMEDE	502	NEW		FT 2024	NO	CONDITIONAL APPROVAL	Reword Course Description so it is specific to BME Ph.D. students to ensure master's students. Graduate standing in Biomedical Engineering Who is intended audience? Wording needs to reflect intended audience.	
33	BIOMEDE	517	MOD	Changes to Course Description, Course Credit Type, Enforced Prerequisite, Course Components	WT 2024	B	CONDITIONAL APPROVAL	Remove Advisory Prerequisite. Change last sentence of course description to, "Students then apply machine learning"  May be useful to add EECS 280 to list of programming courses in Enforced Prerequisite.	
36	KINESLGY	533	MOD	Changes to Course Description, Advisory and Enforced Prerequisites	WT 2024	NO	APPROVED	Cross listed with BIOMEDE 533.  If both schools agree to allow credit for undergraduate students in the future, both schools should submit a future CARF requesting this change to their Curriculum Committees.	

**UNIVERSITY OF MICHIGAN**  
**College of Engineering**  
**Curriculum Committee Meeting**  
**Tuesday, March 7, 2023**

**Attending:** Xiaogan Liang (Chair), Achilleas Anastasopoulos, Robert Bordley, Yavuz Bozer, Saadet Guralp, Roman Hryciw, Odest Chadwicke Jenkins, Xianzhe Jia, Amir Kamil, Cameron Loutitt, Jamie Niehof, Eric Rutherford, Rachael Schmedlen, Katie Snyder, Jan Stegemann, Roxanne Walker, Steven Yalisove, Won Sik Yang

**Support Staff:** Stacie Benison, Mercedes Carmona, Betsy Dodge, Matthew Faunce

**Call to Order: 1:34**

**Adjourned: 2:10**

**AGENDA**

1. Approval of 2.21.2023 Meeting Minutes (Page 2) - **APPROVED**
2. AMPED SUGS BME Proposal - Action Item (Page 5) - **APPROVED**
  - a. This program is for students to earn a Bachelor of Science in an approved field and a Master's degree in Advanced Medical Product Engineering and Development upon completion of five years of study. AMPED MEng degree curriculum includes statistics requirement, concentration core, technical electives, and seminar and RCR courses.
  - b. The BME SUGS programs are well established with 35-45 SUGS students per year and with the addition of the AMPED Program this will help with students interested in making an impact in the medical technology industry.
  - c. To be eligible to apply to the 27 credit AMPED SUGS Program, students must have a minimum 3.20 GPA with a holistic application review. Students will meet with their academic advisor at the end of the junior year to outline a course plan for the program.
  - d. Double counting is a maximum of 6 credits from an undergraduate degree as part of the AMPED curriculum with a grade equal to or better than a B.
  - e. Transfer credits are a maximum of 3 credits not used for an undergraduate degree, but can be used in the AMPED curriculum with a grade equal to or better than a B.
  - f. 3 Letters of Recommendations are required as this was determined by academic advisors who state this serves as a career development exercise for a student to gain the skills to reach out and form connections with faculty.
    - i. The issue of providing more work for faculty members, etc. and advising to reduce the recommendations to two instead of three was brought up. Jan said he would discuss this with advisors and changes will be adjusted if need be.
  - g. A question was raised regarding the transition into the curriculum for students who apply for the program from non-biomedical engineering backgrounds.
    - i. Jan commented on the curriculum being designed with courses in topics such as design for students to be able to gain the background principles of biomedical engineering needed for the AMPED program. There is no requirement for biology in the AMPED curriculum, but if students wish to enter the SUGS program and have little background with biology, there are courses that they can take which will provide them with background on anatomy of physiology needed for the AMPED SUGS program.
  - h. The double counting and transfer credit numbers were questioned as there weren't any other programs, to knowledge, that required the numbers given as they're the least amount of any program within CoE.
    - i. Jan used the Robotics SUGS Program as reference when determining the credit numbers required. The Robotics SUGS program is 30 credit and allows 9 credits to double count and 3 credits to transfer. Jan stated he did not want to take away from the program by increasing the credit numbers for transfer or double counting.

## CARF SUMMARIES

PAGE	SUBJECT	COURSE #	ACTION	SUMMARY	EFFECTIVE TERM	MIN. GRADE REQ. FOR ENF. PREPREQ	APPROVED	NOTES & REVISIONS	TABLED
12	CHE	230	MOD	Changes to Course Title, Course Description, Course Components	FT 2024	C-	APPROVED		
15	CHE	341	MOD	Changes to Course Description, Enforced Prerequisite, Course Components	WT 2024	C-	CONDITIONAL APPROVAL	Change Course Description – First sentence to “Fluid mechanics for chemical engineering”	
18	CHE	342	MOD	Changes to Course Description, Course Components	FT 2024	C-	APPROVED		
21	CHE	466	MOD	Changes to Course Description	FT 2024	C-	APPROVED		
24	MECHENG	517	MOD	Changes to Course Description, Course & Abbreviated Title, Course Credit Type, Advisory Prerequisite	WT 2024	NO	CONDITIONAL APPROVAL	Cross Listed with MACROMOL 517. Update Advisory Prerequisite to include necessary background/curricular experience recommended for students.	
27	MECHENG	617	DEL		WT 2024	NO	APPROVED		

To: College of Engineering Curriculum Committee  
From: Robotics Undergraduate Program  
Date: March 13, 2023  
Re: Robotics Undergraduate Program Changes for AY 23-24

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We would like to make the following changes to the Robotics Undergraduate Program for the 2023-2024 Academic Year. These changes will be communicated to our students via the updated Robotics Undergraduate Program Guide as soon as approval is given.

### **Renaming our Kinematics and Dynamics Discipline Depth to Dynamics and Mechanics**

#### **Moving MECHENG 360 from our Kinematics and Dynamics requirement to Flexible Technical**

Currently MECHENG 240, MECHENG 360, and BIOMEDE 231 satisfy the Kinematics and Dynamics section of our Discipline Breadth requirement. However, MECHENG 240 is an enforced pre-req for MECHENG 360. Since students would not be able to enroll in MECHENG 360 without having completed MECHENG 240, we would like to move MECHENG 360 to count as a Flexible Technical elective.

#### **Adding 400-Level PHYSICS courses as Flexible Technical Electives**

We would like to add 400-level PHYSICS courses at the University of Michigan as a Flexible Technical Elective option in addition to any 400-level course or above within the College of Engineering or any course counting for Mathematics 400-level credit or above at the University of Michigan.

## Robotics Sample Schedule<sup>1</sup>

Requirement Group	Course Name	Credit hours	Term								
			1	2	3	4	5	6	7	8	
Required for all CoE	Robotics 101 or Math 214	4	4								
	Engineering 100	4		4							
	Engineering 101 or Robotics 102	4	4								
	Mathematics 115 and 116	8	4	4							
	Mathematics 216	4			4						
	Physics 140 and Lab 141	5		5							
	Physics 240 and Lab 241	5			5						
	Chemistry 125/126/130 or 210/211	5				5					
	Intellectual Breadth	16	4		4		4			4	
<b>Robotics Program Core</b>	Robotics 204	4				4					
Robotics Intermediate	Robotics 310*	4						4			
	Robotics 311*	4					4				
	Robotics 320	4								4	
	Robotics 330	4							4		
	Robotics 340	4					4				
<b>Disciplinary Breadth</b>	EECS 280 - Data Structures	4			4						
	IOE 265 - Probability and Stat	3				3					
	EECS 215 or 270 or BME 211	4				4					
	ME 240 or BME 231	4						4			
<b>Disciplinary Depth</b>	NAVARCH 270	4					4				
<b>Capstone</b>	TCHNCLCM 350	3							3		
	Robotics 450 or EECS 467	4								4	
<b>Technical Electives</b>	Upper Level Robotics Electives	12						4	4	4	
	Flexible Technical Electives	0									
<b>General Electives</b>	General Electives	11		3				4	4		
* counted as Upper Level Robotics Elective credit	<b>Total</b>	<b>128</b>	<b>16</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>15</b>	<b>16</b>

<sup>1</sup> Please note: This schedule selects 300-level courses and electives which allow the student to emphasize breadth-focused, well rounded robotics. There is a high degree of flexibility within the requirements of the Robotics BSE and it is possible to select 300-level courses and electives to emphasize many other areas. Please see the Robotics Undergraduate Program Guide for more information and sample schedules.

### **Updated Y-Grading Policy from the RO Curriculum Office**

The RO Curriculum Office has notified the CoE Registrar's Office of updates to their policy regarding the use of Y-grading for courses. Lisa Emery, Senior Associate Registrar, has stated that, "students should receive credit in the same term that the course work is being done," The university, as a whole, is moving away from Y-grading.

The RO Curriculum Office noted that, "There have been Y graded classes in the past where registration was in Fall and grades weren't finalized until Winter, these instances have always been rare." The CoE RO was informed by the RO Curriculum Office that the university wants to have any new courses move away from these cases entirely. The preferred course set up is to have half of the credits in the first term, and the other half set up for the following term and make the course repeatable for the total number of credits. Whether or not current courses with Y-grading will be affected has yet to be determined.

## CCC Meeting Schedule for 2023-2024 Academic Year

Conflicting dates/events to keep in mind:

### Fall 2022:

- Fall break - October 16-17, 2023
- Thanksgiving - starting at 5pm on November 21, 2023

### Winter 2023:

- Spring break - February 24 - March 3, 2024

### Fall 2023 Dates

Tuesday, August 29, 2023

Tuesday, September 12, 2023

Tuesday, September 26, 2023

Tuesday, October 10, 2023

Tuesday, October 24, 2023

Tuesday, November 7, 2023

Tuesday, November 21, 2023

Tuesday, December 5, 2022

### Winter 2024 Dates

Tuesday, January 3, 2024

Tuesday, January 17, 2024

Tuesday, January 31, 2024

Tuesday, February 14, 2024

Tuesday, March 14, 2024

Tuesday, March 28, 2024

Tuesday, April 4, 2024

TBD - LSA hosts Joint LSA/CoE Curriculum Committee meeting





# Course Approval Request Form

Office of the Registrar, University of Michigan

1210 LSA Building  
500 S. State Street  
Ann Arbor, MI 48109-1382  
Phone: 734.763.2113  
Fax: 734.936.3148  
ro.curriculum@umich.edu  
ro.umich.edu

CHECK APPROPRIATE BOXES FOR ALL CHANGES

Action Requested

- New Course
- Modification of Existing Course
- Deletion of Existing Course

Date of Submission: 2023-02-16  
Effective Term: Fall 2024

<input checked="" type="checkbox"/>	Course Offered <input checked="" type="checkbox"/> Indefinitely <input type="checkbox"/> One term only	<b>RO USE ONLY</b> Date Received: Date Completed: Completed By:
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**CURRENT LISTING**

**REQUESTED LISTING**

<input checked="" type="checkbox"/>	Dept (Home): Subject: Catalog:	Dept (Home): Biomedical Engineering Subject: BIOMEDE Catalog: 502		
<input type="checkbox"/>	<input type="checkbox"/> Course is Cross-Listed with Other Departments			
	Department	Subject	Catalog Number	
<input type="checkbox"/>				
<input checked="" type="checkbox"/>	Course Title (full title)	Course Title (full title) Professional Skills for Graduate Success		
<input checked="" type="checkbox"/>	Abbreviated Title (20 char)	Abbreviated Title (20 char) Prof Skill Grad Succ		
<input checked="" type="checkbox"/>	Course Description (Please limit to 50 words and attach separate sheet if necessary) Give an orientation to the PhD program, help students understand expectations of graduate students, and provide introductions to key concepts and skills (e.g., citation manager usage, communication etiquette) that will be helpful as graduate students.			
<input checked="" type="checkbox"/>	Full Term Credit Hours			
	Undergraduate Min:	Graduate Min: 1	Undergraduate Min:	Graduate Min:
<input checked="" type="checkbox"/>	Undergraduate Max:			
	Undergraduate Max:	Graduate Max: 1	Undergraduate Max:	Graduate Max:
<input checked="" type="checkbox"/>	Course Credit Type <input type="checkbox"/> Rackham Graduate Student, <input type="checkbox"/> Non-Rackham Graduate Student			
<input type="checkbox"/>	Repeatability			
	<input type="checkbox"/> Course is Repeatable for Credit		<input type="checkbox"/> Course is Y graded	
<input type="checkbox"/>	Maximum number of repeatable credits:		<input type="checkbox"/> Can be taken more than once in the same term	

Subject: Catalog:

<input checked="" type="checkbox"/>	<b>Grading Basis</b> <input type="checkbox"/> Graded (A – E) <input type="checkbox"/> Credit/No Credit <input checked="" type="checkbox"/> Satisfactory/Unsatisfactory <input type="checkbox"/> Pass/Fail <input type="checkbox"/> Business Administration	<b>Add Consent</b> <input type="checkbox"/> Department Consent <input type="checkbox"/> Instructor Consent <input checked="" type="checkbox"/> No Consent	<b>Drop Consent</b> <input type="checkbox"/> Department Consent <input type="checkbox"/> Instructor Consent <input checked="" type="checkbox"/> No Consent
	<b>Grading</b> <input type="checkbox"/> Not for Credit <input type="checkbox"/> Not for Degree Credit <input type="checkbox"/> Degree Credit Only		

**CURRENT LISTING**

**REQUESTED LISTING**

<input type="checkbox"/>	Advisory Prerequisite (254 char)	Advisory Prerequisite (254 char)
<input checked="" type="checkbox"/>	Enforced Prerequisite (254 char) Minimum grade requirement:	Enforced Prerequisite (254 char) Graduate Standing Minimum grade requirement:
<input type="checkbox"/>	Credit Exclusions	Credit Exclusions

<input checked="" type="checkbox"/>	<b>Course Components</b> <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Recitation <input type="checkbox"/> Lab <input type="checkbox"/> Discussion <input type="checkbox"/> Independent Study	<b>Graded Component</b> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Terms Typically Offered</b> <input checked="" type="checkbox"/> Fall <input type="checkbox"/> Winter <input type="checkbox"/> Spring <input type="checkbox"/> Summer <input type="checkbox"/> Spring/Summer

Cognizant Faculty Member Name: Tim Bruns

Cognizant Faculty Member Title:

**SIGNATURES ARE REQUIRED FROM ALL DEPARTMENTS INVOLVED (Please Print AND Sign Name)**

Contact Person:

Email:

Phone:

CoE Curriculum

Committee Representative:

Print: Cameron Louttit

Date: 2/16/23

CoE Curriculum Committee Chair:

Print:

Date:

Home Department Chair:

Print: Tim Bruns

Date: 2/16/23

Cross-Listed Department Chair:

Print:

Date:

Cross-Listed Department Chair:

Print:

Date:

Cross-Listed Department Chair:

Print:

Date:

**DEPARTMENTAL/COLLEGE USE ONLY**

**Current:****Requested:**Course DescriptionCourse Description

Give an orientation to the PhD program, help students understand expectations of graduate students, and provide introductions to key concepts and skills (e.g., citation manager usage, communication etiquette) that will be helpful as graduate students.

Class LengthClass Length

Full term

Contact hours (lecture):Contact hours (lecture):

1

Contact hours (recitation)Contact hours (recitation)Contact hours (lab)Contact hours (lab)**Additional Info:**Submitted by:

Home dept

Describe how this course fits with the degree requirements:

This is a required first-semester class for entering PhD students. The class introduces students to their peers and to concepts important to their overall success within the program. The class has been offered for more than five years.

Special resources of facilities required for this course:Supporting statement:

This is a required first-semester class for entering PhD students. The class introduces students to their peers and to concepts important to their overall success within the program. The class has been offered for more than five years.

# Professional Skills for Graduate Success

Professor David Sept

September 4, 2020

# “Course” Logistics

- The purpose of this class is to:
  - give some orientation to the PhD program
  - help you understand expectations
  - provide you with advice on how to succeed in graduate school
  - get you to start thinking about your long-term future

Why do you want to  
get a PhD?

# *The Atlantic*

BUSINESS

## **The Ph.D Bust: America's Awful Market for Young Scientists—in 7 Charts**

Perhaps it's time to start talking about a STEM surplus?

**JORDAN WEISSMANN**

**FEB 20, 2013**

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Politicians and businessmen are fond of talking about America's scientist shortage -- the dearth of engineering and lab talent that will inevitably leave us sputtering in the global economy.

But perhaps it's time they start talking about our *scientist surplus* instead.

# Science AAAS

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- Topics
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- Articles
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- Forum
- For Employers
- Employer Profiles
- Graduate Programs

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12



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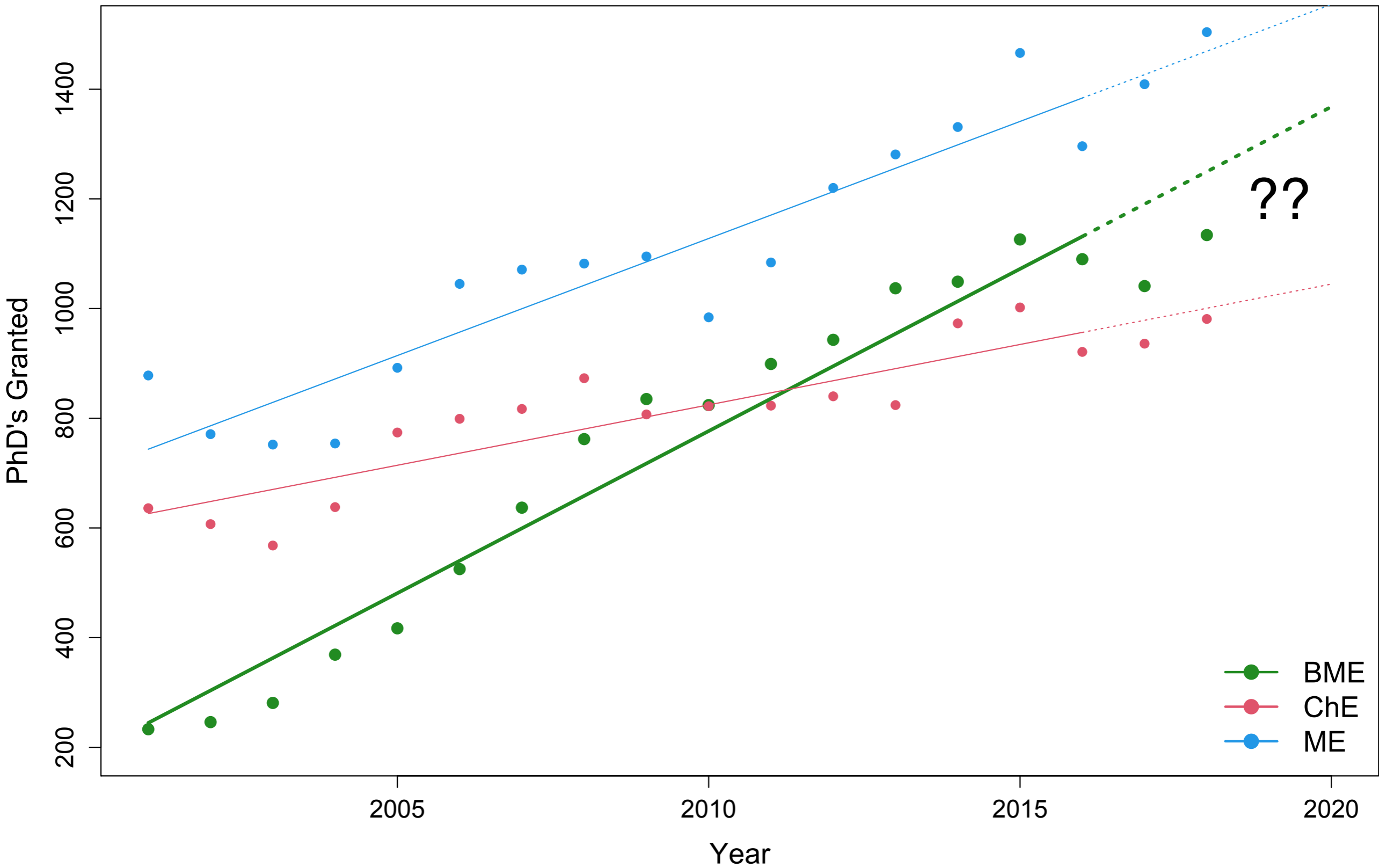


Credit: T.Sheerman-Chase/Flickr

## 'Employment crisis' for new Ph.D.s is an illusion

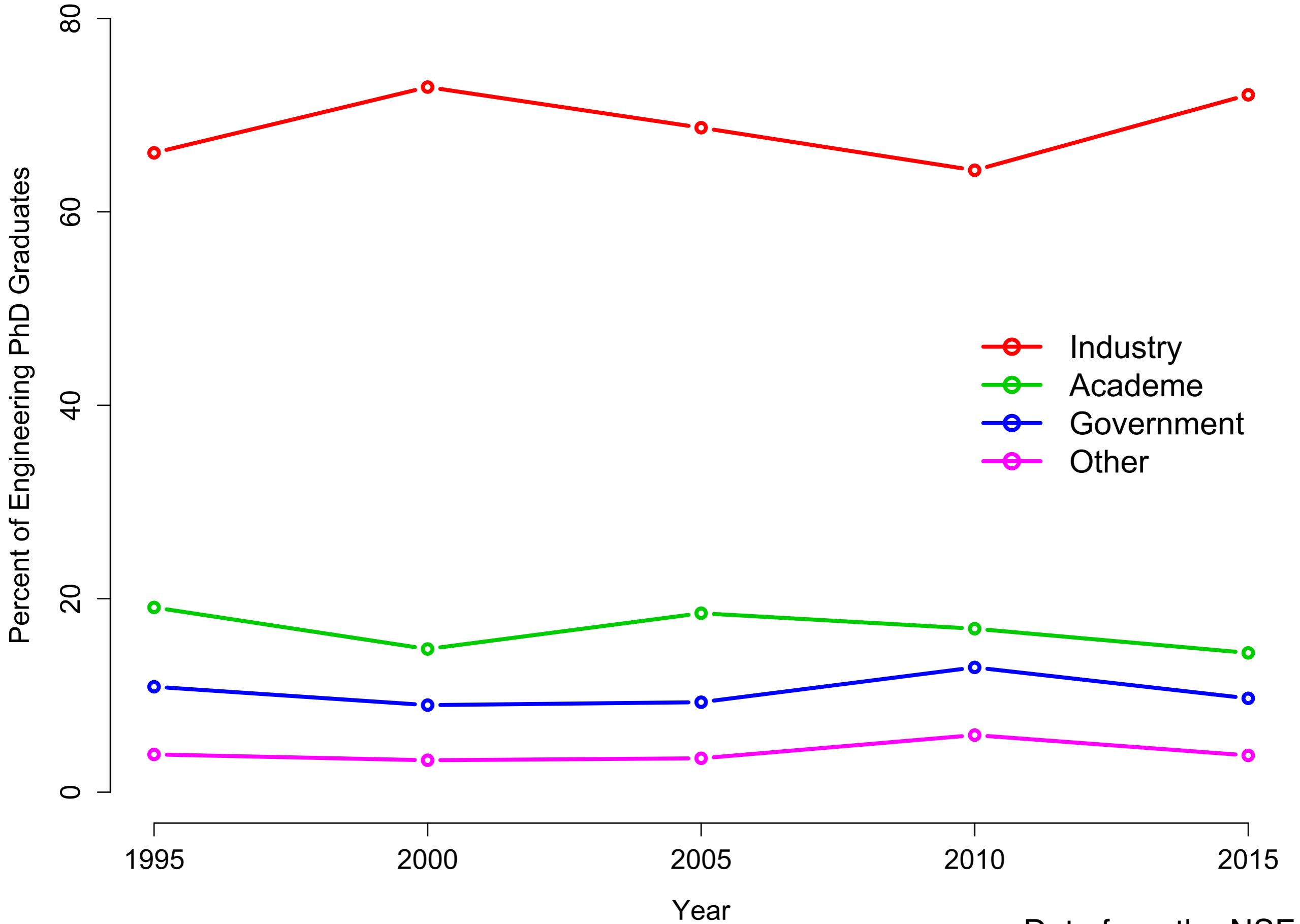
By [Jeffrey Mervis](#) | May. 19, 2016 , 2:00 PM





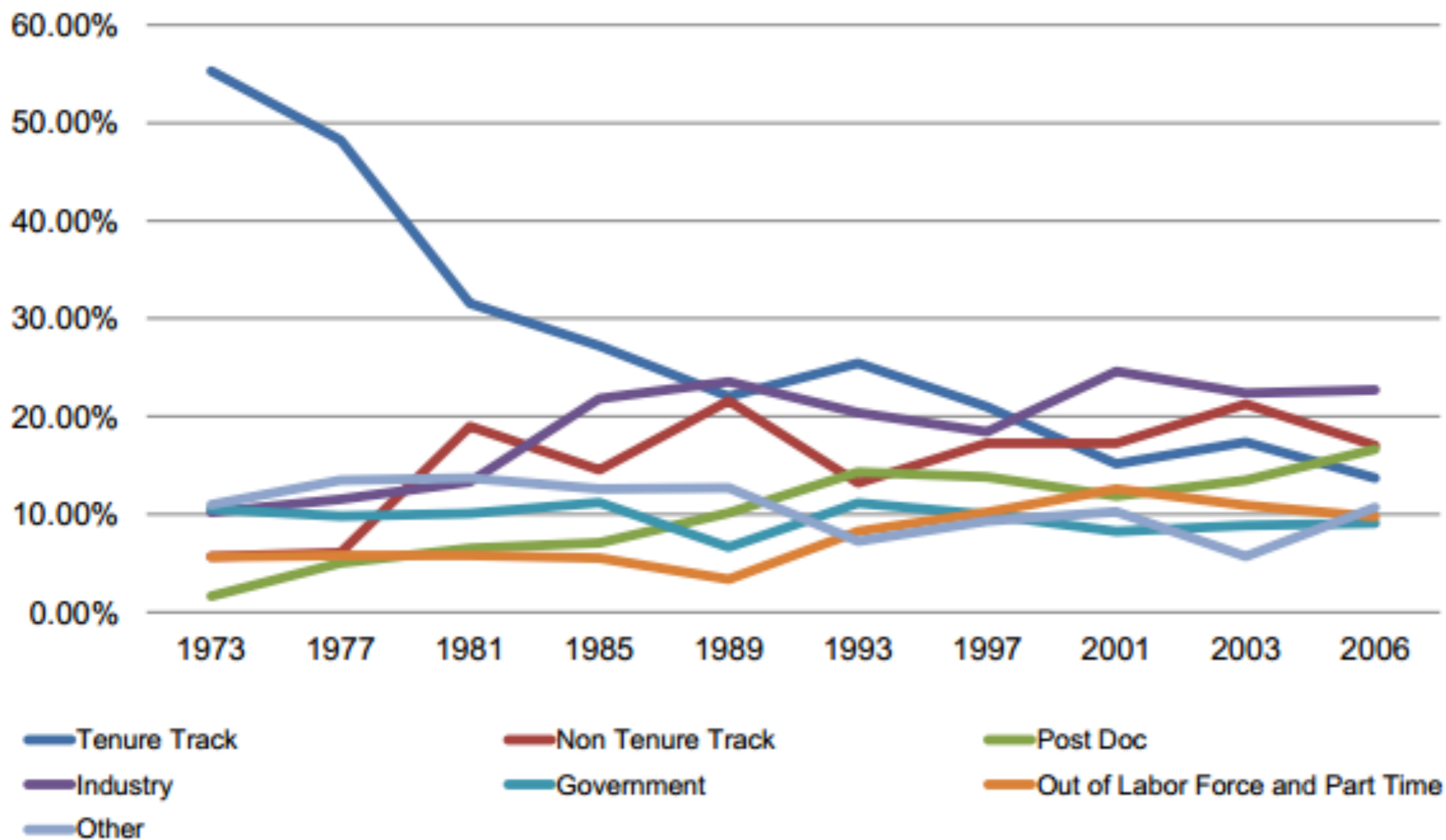
Data from the NSF

What do you want to  
do after your PhD?



Data from the NSF

# Biological Sciences: 5-6 Year Cohort



Data from the NSF

# Objectives

The objectives of this seminar course are simple and two-fold:

- 1. Provide you with skills you need to be a successful graduate student.**
- 2. Provide you with skills you will need to be successful beyond graduate school.**

... and then make you realize these are the same thing.

**What Skills or Attributes  
do You Need for  
Success?**

# You Need Skills to Compete

- Part of the challenge is casting the skills you get in your PhD research in terms that others understand
  - Design of Experiments = Analysis & Problem Solving
  - Running Group Discussions = Interpersonal Leadership Skills
  - ... plus many other transferrable skills!
- <https://careercenter.umich.edu/article/phd-transferable-skills>

# Examples

## **Analysis & Problem-Solving**

- Define a problem and identify possible causes
- Comprehend large amounts of information
- Form and defend independent conclusions
- Design an experiment, plan, or model that defines a problem, tests potential resolutions and implements a solution

## **Self-Management & Work Habits**

- Work effectively under pressure and to meet deadlines
- Comprehend new material and subject matter quickly
- Work effectively with limited supervision



# The Keys to Success

- If you are expecting a list of secrets to wealth, fame and happiness, you may be disappointed with this list. But here is a taste of what is to come:
  1. **Hard work pays off** - there are no shortcuts to getting a PhD, and there is even more hard work once you graduate.
  2. **Find a thesis lab/topic about which you are passionate** - if your thesis work doesn't keep you up late at night or get you up early in the morning, it may be hard to complete.

# The Keys to Success

3. **Plan for the future** - what are your long-term goals? How will you reach them? Revisit your *IDP*.
4. **Develop independence and a thick skin** - independence is the mark of a true scientist, but you also need to take the responsibility and criticism.
5. **Learn to communicate** - independent of where you end up, you need to speak, write and present clearly and accurately.
6. **Make connections** - take opportunities to meet people, both in your field and beyond.

# The Keys to Success

7. **Take charge of your life / destiny / thesis** - you bear the responsibility for your own success.
8. **Have a life outside of the lab** - friendships you develop in graduate school last a lifetime.
9. **Read the literature** - a wise colleague used to say “an hour in the library saves a week in the lab”.
10. **Broaden your horizons** - take advantage of the university environment and the world class speakers that come through.

# Individual Development Plans

- An **Individual Development Plan** or **IDP** is effectively a game plan for your future life.
- Careers in academe, as research or tenure-track faculty, are no longer the norm - “alternative” or “non-traditional” careers are much more common.
- An IDP can help with career planning based on your interests. Further, it can help identify the skills you will need to develop/learn to be successful in particular careers.

# myidp.sciencecareers.org



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You have put a lot of time and effort into pursuing your PhD degree. Now it's time to focus on how to leverage your expertise into a satisfying and productive career. An individual development plan (IDP) helps you explore career possibilities and set goals to follow the career path that fits you best.

myIDP provides:

- Exercises to help you examine your skills, interests, and values
- A list of 20 scientific career paths with a prediction of which ones best fit your skills and interests
- A tool for setting strategic goals for the coming year, with optional reminders to keep you on track
- Articles and resources to guide you through the process

There is no charge to use this site and we encourage you to return as often as you wish. To learn more about the value of IDPs for scientists, read the [first article in our myIDP series](#).

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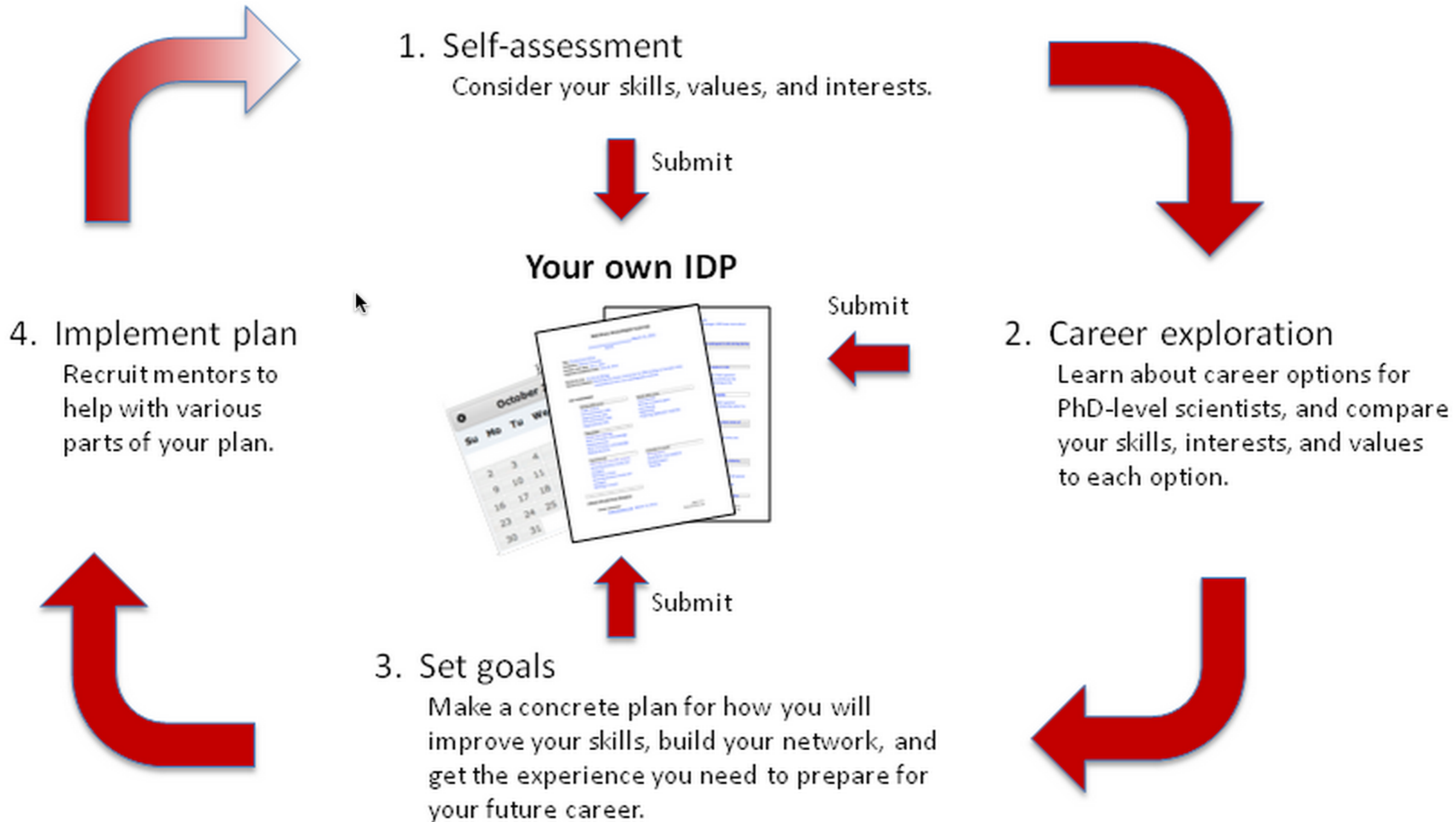
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San Francisco



# The MyIDP Workflow



# Future Classes

- What to look for in a mentor
- Intensity and keys to student success
  
- Professional Development Seminar Series
  - Hopefully starting again this fall

University of Michigan  
 Fall 2019 Instructor Report With Comments  
 BIOMEDE 599-003: Spec Topics  
 David Sept

10 out of 21 students responded to this evaluation.

**Responses to the University-wide questions about the course:**

	SA	A	N	D	SD	N/A	Your Median	University- Wide Median	School/College Median
This course advanced my understanding of the subject matter. (Q1631)	3	3	3	1	0	0	3.8	4.5	4.6
My interest in the subject has increased because of this course. (Q1632)	3	2	4	0	1	0	3.5	4.2	4.5
I knew what was expected of me in this course.(Q1633)	4	1	3	1	1	0	3.5	4.4	4.5
Overall, this was an excellent course.(Q1)	3	2	3	2	0	0	3.5	4.2	4.5
I had a strong desire to take this course.(Q4)	4	1	2	3	0	0	3.5	4.0	4.5
As compared with other courses of equal credit, the workload for this course was...(SA=Much Lighter to SD=Much Heavier) (Q891)	7	1	2	0	0	0	4.8	3.0	3.0

**Responses to University-wide questions about the instructor:**

	SA	A	N	D	SD	N/A	Your Median	University-Wide Median	School/College Median
Overall, David Sept was an excellent teacher.(Q2)	6	2	2	0	0	0	4.7	4.6	4.6
David Sept seemed well prepared for class meetings.(Q230)	6	1	1	2	0	0	4.7	4.8	4.8
David Sept explained material clearly.(Q199)	5	3	1	0	0	0	4.6	4.6	4.6
David Sept treated students with respect.(Q217)	8	2	0	0	0	0	4.9	4.8	4.8

**Responses to additional questions about the instructor:**

	SA	A	N	D	SD	N/A	Your Median	University-Wide Median
David Sept acknowledged all questions insofar as possible. (Q216)	8	1	0	0	0	0	4.9	4.7

The medians are calculated from Fall 2019 data. University-wide medians are based on all UM classes in which an item was used. The school/college medians in this report are based on classes that are graduate level with enrollment of 16 to 74 in College of Engineering.



University of Michigan  
 Fall 2021 Instructor Report With Comments  
 BIOMEDE 599-003: Spec Topics  
 David Sept

13 out of 28 students responded to this evaluation.

**Responses to University-wide questions about the course:**

	SA	A	N	D	SD	N/A	Your Median	Univ-wide Median	School/College Median
This course advanced my understanding of the subject matter. (Q1631)	6	6	0	0	0	1	4.5	4.5	4.6
My interest in the subject has increased because of this course. (Q1632)	7	4	0	0	0	1	4.7	4.2	4.5
I knew what was expected of me in this course.(Q1633)	10	2	0	0	0	1	4.9	4.5	4.5
I had a strong desire to take this course.(Q4)	9	2	1	0	0	1	4.8	4.0	4.5
As compared with other courses of equal credit, the workload for this course was (SA=Much Lighter, A=Lighter, N=Typical, D=Heavier, SD=Much Heavier). (Q891)	8	2	1	0	0	2	4.8	3.0	3.0

**Responses to University-wide questions about the instructor:**

	SA	A	N	D	SD	N/A	Your Median	Univ-wide Median	School/College Median
David Sept seemed well prepared for class meetings.(Q230)	10	1	1	0	0	1	4.9	4.8	4.8
David Sept explained material clearly.(Q199)	9	2	1	0	0	1	4.8	4.7	4.7
David Sept treated students with respect.(Q217)	12	0	0	0	0	1	5.0	4.9	4.8

**Responses to questions about the course:**

	SA	A	N	D	SD	N/A	Your Median
Overall, this was an excellent course. (Q1)	9	2	0	1	0	1	4.8

**Responses to questions about the instructor:**

	SA	A	N	D	SD	N/A	Your Median
Overall, David Sept was an excellent teacher. (Q2)	8	3	1	0	0	1	4.8
David Sept acknowledged all questions insofar as possible. (Q216)	9	3	0	0	0	1	4.8

The medians are calculated from Fall 2021 data. University-wide medians are based on all UM classes in which an item was used. The school/college medians in this report are based on classes that are graduate level with enrollment of 16 to 74 in College of Engineering.



# Course Approval Request Form

Office of the Registrar, University of Michigan

1210 LSA Building  
 500 S. State Street  
 Ann Arbor, MI 48109-1382  
 Phone: 734.763.2113  
 Fax: 734.936.3148  
 ro.curriculum@umich.edu  
 ro.umich.edu

CHECK APPROPRIATE BOXES FOR ALL CHANGES

Action Requested

- New Course
- Modification of Existing Course
- Deletion of Existing Course

Date of Submission: 2023-03-02  
 Effective Term: Winter 2024

<input checked="" type="checkbox"/>	Course Offered <input checked="" type="checkbox"/> Indefinitely <input type="checkbox"/> One term only	<b>RO USE ONLY</b> Date Received: Date Completed: Completed By:
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**CURRENT LISTING**

**REQUESTED LISTING**


<input type="checkbox"/>	Dept (Home): Biomedical Engineering Subject: BIOMEDE Catalog: 517	Dept (Home): Biomedical Engineering Subject: BIOMEDE Catalog: 517												
<input type="checkbox"/>	<input type="checkbox"/> Course is Cross-Listed with Other Departments	<input type="checkbox"/> Course is Cross-Listed with Other Departments												
<input type="checkbox"/>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Department</th> <th style="width: 25%;">Subject</th> <th style="width: 50%;">Catalog Number</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Department	Subject	Catalog Number				<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Department</th> <th style="width: 25%;">Subject</th> <th style="width: 50%;">Catalog Number</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Department	Subject	Catalog Number			
Department	Subject	Catalog Number												
Department	Subject	Catalog Number												
<input type="checkbox"/>	Course Title (full title) Sensing and Machine Learning for Neural Interfaces	Course Title (full title) Sensing and Machine Learning for Neural Interfaces												
<input type="checkbox"/>	Abbreviated Title (20 char) Neural Engr	Abbreviated Title (20 char) Neural Engr												
<input checked="" type="checkbox"/>	Course Description (Please limit to 50 words and attach separate sheet if necessary) Focuses on techniques for understanding and interacting with the nervous system. Students first implement quantitative models of neurons followed by models of recording and stimulation. Next students apply machine learning techniques to extract information from large neural datasets.													
<input type="checkbox"/>	Full Term Credit Hours Undergraduate Min:            Graduate Min: 3 Undergraduate Max:           Graduate Max: 3	Half Term Credit Hours Undergraduate Min:            Graduate Min: Undergraduate Max:           Graduate Max:												
<input checked="" type="checkbox"/>	Course Credit Type Rackham Graduate Student, Non-Rackham Graduate Student													
<input type="checkbox"/>	Repeatability <input type="checkbox"/> Course is Repeatable for Credit Maximum number of repeatable credits:													
	<input type="checkbox"/> Course is Y graded <input type="checkbox"/> Can be taken more than once in the same term													

Subject: Biomedical Engineering      Catalog: 517	
<input type="checkbox"/>	<b>Grading Basis</b> <input checked="" type="checkbox"/> Graded (A – E) <input type="checkbox"/> Credit/No Credit <input type="checkbox"/> Satisfactory/Unsatisfactory <input type="checkbox"/> Pass/Fail <input type="checkbox"/> Business Administration <b>Grading</b> <input type="checkbox"/> Not for Credit <input type="checkbox"/> Not for Degree Credit <input type="checkbox"/> Degree Credit Only
<input type="checkbox"/>	<b>Add Consent</b> <input type="checkbox"/> Department Consent <input type="checkbox"/> Instructor Consent <input checked="" type="checkbox"/> No Consent
<input type="checkbox"/>	<b>Drop Consent</b> <input type="checkbox"/> Department Consent <input type="checkbox"/> Instructor Consent <input checked="" type="checkbox"/> No Consent

	CURRENT LISTING	REQUESTED LISTING
<input type="checkbox"/>	Advisory Prerequisite (254 char) Biomed 211 or EECS 215 or EECS 314; and EECS 216; and Math 216; and Engr 101 or EECS 183 or EECS 180	Advisory Prerequisite (254 char) Biomed 211 or EECS 215 or EECS 314; and EECS 216; and Math 216; and Engr 101 or EECS 183 or EECS 180
<input checked="" type="checkbox"/>	Enforced Prerequisite (254 char) (BIOMEDE 211 or EECS 215 or 314) and EECS 216 and MATH 216 and (ENGR 101 or EECS 183) Minimum grade requirement: C-	Enforced Prerequisite (254 char) (Biomed 211 or EECS 215 or EECS 314); and (EECS 216); and (Math 216); and (Engr 101 or EECS 183 or EECS 180) or Graduate Standing (B or better, NO OP/F) Minimum grade requirement: B
<input type="checkbox"/>	Credit Exclusions	Credit Exclusions
<input checked="" type="checkbox"/>	<b>Course Components</b> <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Recitation <input type="checkbox"/> Lab <input type="checkbox"/> Discussion <input type="checkbox"/> Independent Study	<b>Graded Component</b> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
		<b>Terms Typically Offered</b> <input type="checkbox"/> Fall <input checked="" type="checkbox"/> Winter <input type="checkbox"/> Spring <input type="checkbox"/> Summer <input type="checkbox"/> Spring/Summer
Cognizant Faculty Member Name: Cynthia Chestek		Cognizant Faculty Member Title: Assoc. Professor

**SIGNATURES ARE REQUIRED FROM ALL DEPARTMENTS INVOLVED (Please Print AND Sign Name)**

Contact Person: Rachel Patterson      Email: rjpatt@umich.ed      Phone: 3-5290

CoE Curriculum Committee Representative:       Print: Cameron Louttit      Date: 03/03/2023

CoE Curriculum Committee Chair: \_\_\_\_\_      Print: \_\_\_\_\_      Date: \_\_\_\_\_

Home Department Chair:       Print: Tim Bruns      Date: 3/2/23

Cross-Listed Department Chair: \_\_\_\_\_      Print: \_\_\_\_\_      Date: \_\_\_\_\_

Cross-Listed Department Chair: \_\_\_\_\_      Print: \_\_\_\_\_      Date: \_\_\_\_\_

Cross-Listed Department Chair: \_\_\_\_\_      Print: \_\_\_\_\_      Date: \_\_\_\_\_

## DEPARTMENTAL/COLLEGE USE ONLY

**Current:**Course Description

This course focuses on techniques for understanding and interacting with the nervous system. Students first implement quantitative models of neurons followed by models of recording and stimulation. Next students apply machine learning techniques to extract information from large neural datasets.

Class Length

Full term

Contact hours (lecture):

3

Contact hours (recitation)Contact hours (lab)**Requested:**Course Description

Focuses on techniques for understanding and interacting with the nervous system. Students first implement quantitative models of neurons followed by models of recording and stimulation. Next students apply machine learning techniques to extract information from large neural datasets.

Class Length

Full term

Contact hours (lecture):

3

Contact hours (recitation)Contact hours (lab)**Additional Info:**Submitted by:

Home dept

Describe how this course fits with the degree requirements:Special resources of facilities required for this course:Supporting statement:

adding graduate standing to the enforced prerequisites.



## Course Approval Request Form

Office of the Registrar, University of Michigan

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500 S. State Street

Ann Arbor, MI 48109-1382

Phone: 734.763.2113

Fax: 734.936.3148

ro.curriculum@umich.edu

ro.umich.edu

CHECK APPROPRIATE BOXES FOR ALL CHANGES

### Action Requested

- New Course  
 Modification of Existing Course  
 Deletion of Existing Course

Date of Submission: 2023-02-27

Effective Term: Winter 2024

<input checked="" type="checkbox"/>	Course Offered <input checked="" type="checkbox"/> Indefinitely <input type="checkbox"/> One term only	<b>RO USE ONLY</b> Date Received: Date Completed: Completed By:
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### CURRENT LISTING

### REQUESTED LISTING

<input type="checkbox"/>	Dept (Home): Kinesiology Subject: KINESLGY Catalog: 533			Dept (Home): Kinesiology Subject: KINESLGY Catalog: 533		
<input checked="" type="checkbox"/>	Course is Cross-Listed with Other Departments			Course is Cross-Listed with Other Departments		
<input type="checkbox"/>	Department	Subject	Catalog Number	Department	Subject	Catalog Number
<input type="checkbox"/>	Biomedical Engineering - BME - 533			Biomedical Engineering - BME - 533		
<input type="checkbox"/>	Course Title (full title) Neuromechanics			Course Title (full title) Neuromechanics		
<input type="checkbox"/>	Abbreviated Title (20 char) Neuromechanics			Abbreviated Title (20 char) Neuromechanics		
<input checked="" type="checkbox"/>	Course Description (Please limit to 50 words and attach separate sheet if necessary) This graduate course examines the structural and physiologic properties of muscle, as well as its force production, and overall biomechanical function. Muscle structure and neuromuscular function will be explored at the neural, protein, single fiber, and whole tissue levels.					
<input type="checkbox"/>	Full Term Credit Hours			Half Term Credit Hours		
<input type="checkbox"/>	Undergraduate Min:	Graduate Min: 3		Undergraduate Min:	Graduate Min:	
<input type="checkbox"/>	Undergraduate Max:	Graduate Max: 3		Undergraduate Max:	Graduate Max:	
<input type="checkbox"/>	Course Credit Type Rackham Graduate Student					
<input type="checkbox"/>	Repeatability <input type="checkbox"/> Course is Repeatable for Credit <input type="checkbox"/> Course is Y graded Maximum number of repeatable credits: _____ <input type="checkbox"/> Can be taken more than once in the same term					

Subject: Kinesiology      Catalog: 533	
<input type="checkbox"/>	<p><b>Grading Basis</b></p> <p><input checked="" type="checkbox"/> Graded (A – E)</p> <p><input type="checkbox"/> Credit/No Credit</p> <p><input type="checkbox"/> Satisfactory/Unsatisfactory</p> <p><input type="checkbox"/> Pass/Fail</p> <p><input type="checkbox"/> Business Administration</p> <p><b>Grading</b></p> <p><input type="checkbox"/> Not for Credit</p> <p><input type="checkbox"/> Not for Degree Credit</p> <p><input type="checkbox"/> Degree Credit Only</p>
	<p><b>Add Consent</b></p> <p><input type="checkbox"/> Department Consent</p> <p><input type="checkbox"/> Instructor Consent</p> <p><input checked="" type="checkbox"/> No Consent</p>
	<p><b>Drop Consent</b></p> <p><input type="checkbox"/> Department Consent</p> <p><input type="checkbox"/> Instructor Consent</p> <p><input checked="" type="checkbox"/> No Consent</p>

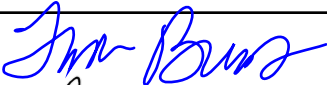
	CURRENT LISTING	REQUESTED LISTING
<input checked="" type="checkbox"/>	Advisory Prerequisite (254 char) Graduate Status	Advisory Prerequisite (254 char)
<input checked="" type="checkbox"/>	Enforced Prerequisite (254 char) Minimum grade requirement:	Enforced Prerequisite (254 char) Graduate Standing Minimum grade requirement:
<input type="checkbox"/>	Credit Exclusions	Credit Exclusions
<input type="checkbox"/>	<p><b>Course Components</b></p> <p><input checked="" type="checkbox"/> Lecture</p> <p><input type="checkbox"/> Seminar</p> <p><input type="checkbox"/> Recitation</p> <p><input type="checkbox"/> Lab</p> <p><input type="checkbox"/> Discussion</p> <p><input type="checkbox"/> Independent Study</p>	<p><b>Graded Component</b></p> <p><input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>
		<p><b>Terms Typically Offered</b></p> <p><input type="checkbox"/> Fall</p> <p><input type="checkbox"/> Winter</p> <p><input type="checkbox"/> Spring</p> <p><input type="checkbox"/> Summer</p> <p><input type="checkbox"/> Spring/Summer</p>
	Cognizant Faculty Member Name:	Cognizant Faculty Member Title:

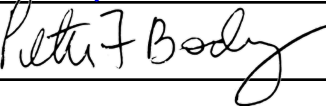
**SIGNATURES ARE REQUIRED FROM ALL DEPARTMENTS INVOLVED (Please Print AND Sign Name)**

Contact Person: Rachel Patterson      Email: rjpatt@umich.edu      Phone:

CoE Curriculum Committee Representative:       Print: Kathleen Panagis      Date: 2/28/2023

CoE Curriculum Committee Chair: \_\_\_\_\_      Print: \_\_\_\_\_      Date: \_\_\_\_\_

Home Department Chair:       Print: Tim Bruns      Date: 2/27/23

Cross-Listed Department Chair:       Print: Peter Bodary      Date: 3/6/23

Cross-Listed Department Chair: \_\_\_\_\_      Print: \_\_\_\_\_      Date: \_\_\_\_\_

Cross-Listed Department Chair: \_\_\_\_\_      Print: \_\_\_\_\_      Date: \_\_\_\_\_

**DEPARTMENTAL/COLLEGE USE ONLY**

**Current:****Requested:**Course Description

This course focuses on interactions of the nervous and musculoskeletal systems during human and animal movement with a focus on basic biological and engineering principles. Topics will include neuromechanical control of movement, neurorehabilitation, biorobotics, and computer simulations of neuromechanical systems.

Course Description

This graduate course examines the structural and physiologic properties of muscle, as well as its force production, and overall biomechanical function. Muscle structure and neuromuscular function will be explored at the neural, protein, single fiber, and whole tissue levels.

Class Length

Full term

Class Length

Full term

Contact hours (lecture):

3

Contact hours (lecture):

3

Contact hours (recitation)Contact hours (recitation)Contact hours (lab)Contact hours (lab)**Additional Info:**Submitted by:

Cross-listed dept

Describe how this course fits with the degree requirements:Special resources of facilities required for this course:Supporting statement:

Kinesiology has requested an update to the course description and an update to the Enforced Prerequisite of "Graduate Standing," which will remove this from the Advisory Prerequisite section.