STUDENT LEARNING AND ANALYTICS AT MICHIGAN

September 13, 2013:

Learning Analytics at U-M: An Update and Agenda for 2013-15

Tim McKay, Arthur F. Thurnau Professor of Physics and
Chair of the Provost's Learning Analytics Taskforce

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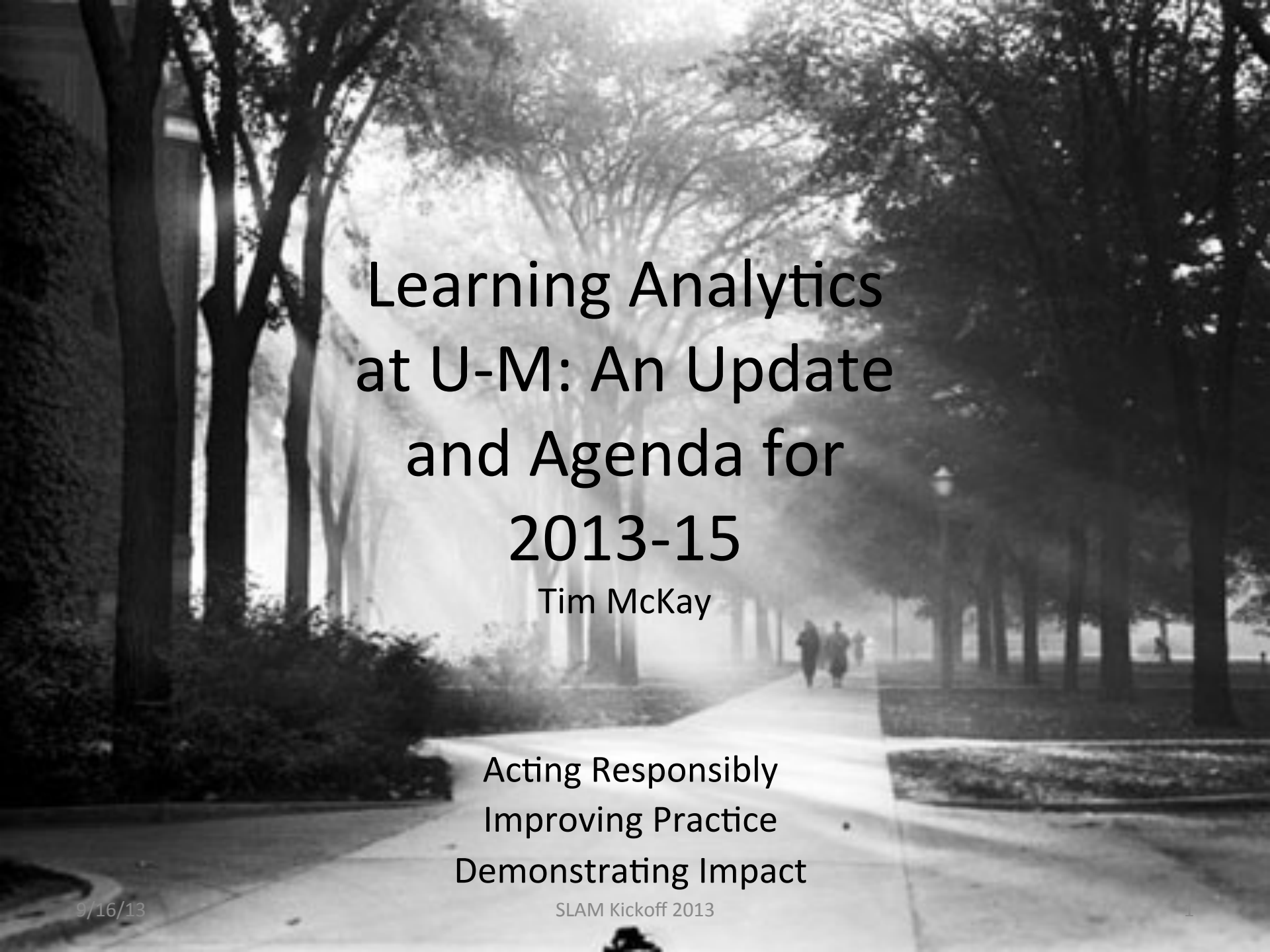
STUDENT LEARNING AND ANALYTICS AT MICHIGAN

www.crlt.umich.edu/slam



Learning Analytics at U-M: An Update and Agenda for 2013-15

Tim McKay

Acting Responsibly

Improving Practice

Demonstrating Impact

LA Task Force Charge

1. Explore the UM information environment and optimize for learning analytics
2. Fund a series of the best proposed LA projects at UM
3. Review the metrics used to assess teaching and learning at UM

- LATF will operate for three years
- Year 1
  - Began ELA grants program
  - First LA Fellows program
  - Continued SLAM
- Years 2 and 3
  - Final ELA grants
  - Continued SLAM and LA Fellows
  - Tool building and dissemination

LATF Membership

- **Anne Ruggles Gere:** Arthur F Thurnau and Gertrude Buck Collegiate Professor of Education, Director Sweetland Center for Writing
- **Barry Jay Fishman:** Associate Professor of Education, School of Education and Associate Professor of Information, School of Information
- **Hosagrahar V Jagadish:** Bernard A Galler Collegiate Professor of Electrical Engineering and Computer Science, Professor of Electrical Engineering and Computer Science
- **Mika LaVaque-Manty:** Arthur F Thurnau Professor of Political Science and Philosophy
- **William J Gehring:** Arthur F Thurnau Professor, Professor of Psychology
- **Stephanie Teasley:** Research Professor of Information, Director of the USE Lab in the University Library Digital Media Commons
- **Susan Marie Dynarski:** Associate Professor of Public Policy, Associate Professor of Education, and Associate Professor of Economics
- **Timothy A McKay (Chair):** Arthur F Thurnau Professor of Physics and Astronomy and Director of the Honors Program
- **Victor J Strecher:** Professor of Health Behavior & Health Education and Director for Innovation and Social Entrepreneurship, School of Public Health, Professor of Family Medicine
- **Joanna Mirecki-Millunchick:** Professor of Materials Science and Engineering, College of Engineering

SLAM 2012-2013

Date	Presenter(s)	Title	Materials
9/14	Tim McKay, Arthur F. Thurnau Professor of Physics and Chair of the Provost's Learning Analytics Task Force	An Introduction to Student Learning and Analytics (SLAM) at U-M	Slides Video
9/21	George Siemens, Associate Director, Technology Enhanced Knowledge Research Institute, Athabasca University, Edmonton, Canada	Multi-Dimensional Learning Analytics	Slides Video
10/12	Learning Analytics Task Force members	U-M Resources for Learning Analytics Projects: Grants and Fellows Program	Slides Video
10/19	Krishna Madhavan, Assistant Professor, School of Engineering Education, Purdue University	Interactive Large-Scale Data Analyses and Visualization for Learning	Slides N/A
1/9	Marsha Lovett, Director of Carnegie Mellon University's Eberly Center for Teaching Excellence and Associate Teaching Professor in the Department of Psychology	Next-Generation Analytics with the Learning Dashboard	Slides Video
1/16	Bill Gehring, Arthur F. Thurnau Professor of Psychology	Lessons Learned from Student Analytics in Psychology and the Bridge Program	Slides Video
1/18	Brian Lindley, Provost, Austin Peay State University	Degree Compass: A Course Recommendation System	Slides Video
1/23	Dr. Joanna Mirecki Millunchick, Professor of Materials Science and Engineering, U-M College of Engineering	High Return on Faculty Investment: Addressing Diverse Student Needs in Large Lectures Through Screencasting	Slides -Video -Best Practices
2/8	Dr. David Niemi, Vice President of Measurement and Evaluation, Kaplan, Inc.	Learning Analytics, Learning Metrics, and Learning Science	Slides Video
2/15	Nancy Kerner, Lecturer in Chemistry Brenda Gunderson, Lecturer in Statistics Ginger Shultz, Lecturer in Chemistry	Online Learning Resources in Chemistry and Statistics	Slides Video
3/15	Vince Kellen, Senior Vice Provost for Academic Planning, Analytics and Technologies, University of Kentucky	OMG! The Future of Teaching	Slides Video
4/12	Dr. Mika LaVaque-Manty, Arthur F. Thurnau Professor of Political Science and Philosophy; Dr. Barry Fishman, Associate Professor of Education and of Information; Stephen Aguilar, Ph.D. student in the School of Education; Caitlin Holman, Ph.D. student in the School of Information	GradeCraft: Exploring Online Use Data to Uncover Student Engagement	Slides Video

SLAM Seminar Series from 2012-2013 Academic Year

Exploring Learning Analytics Grants

- Exploring LA grants:
  - Funding for one or two years, typically at the $50-150k/year level
  - Consultation on what data is available and how to access it
  - Technical assistance for extraction of data sets
  - Consultation on statistical approaches to analysis
  - Help with applying for IRB approval for projects which require it

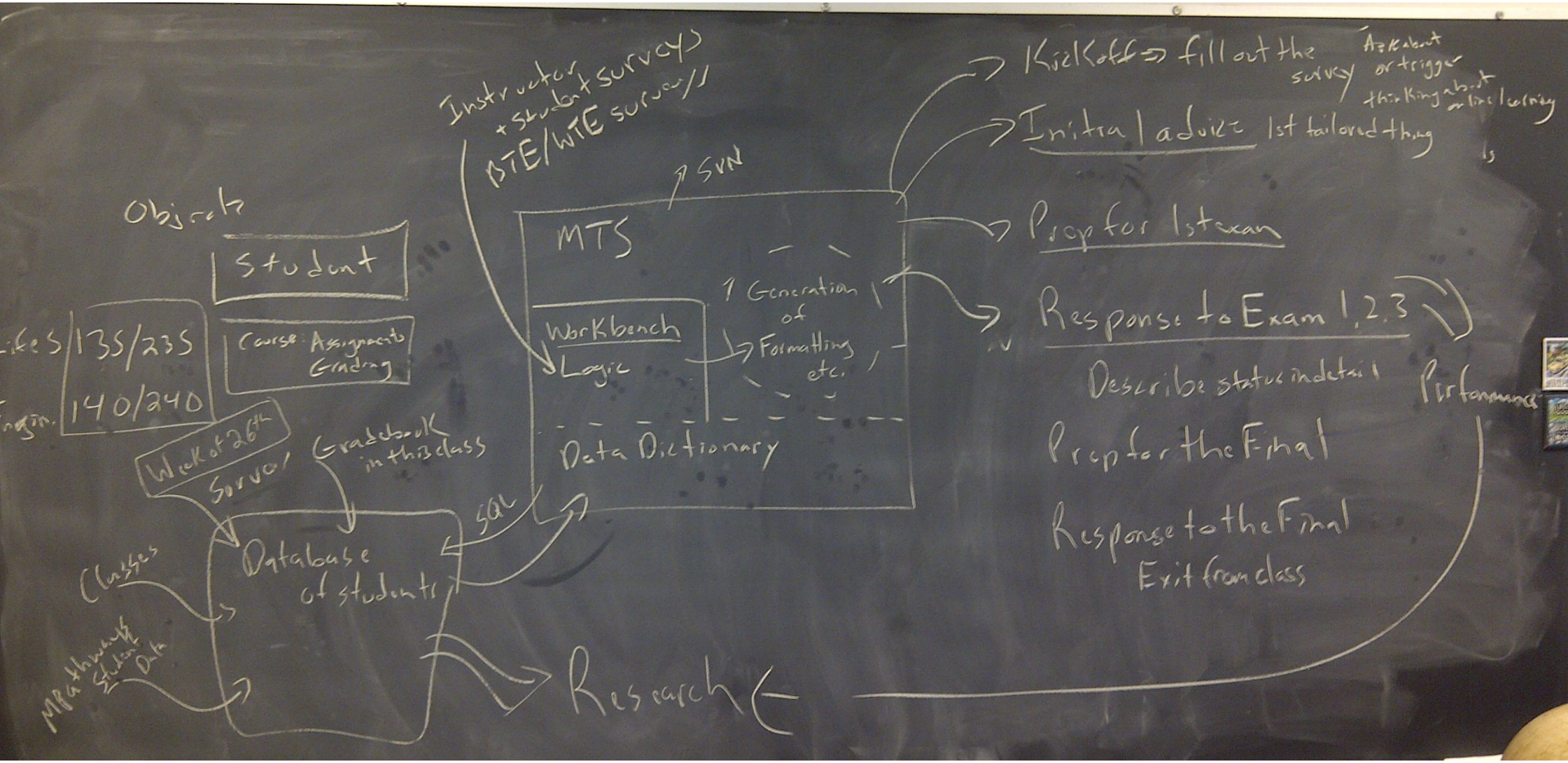
- 16 proposals – 8 funded

Project Title	Principal Investigators
Engaging Faculty with Learning Analytics: Developing New Tools to Support Departmental Assessment	Mary Wright (CRLT) and Phil DeLoria (LSA)
Customized Course Advising at Michigan	Cinda-Sue Davis (MSTEM and WISE) and Steve Lonn (USE Lab)
Engaged Advising: Using Data to Construct a Narrative for Success	Meg Noori (CSP) and Steve Lonn (USE Lab)
Expanding E^2Coach to Enhance Student Success in Introductory STEM Courses	John Wolfe & Ginger Shultz (Chem), Laura Olsen (Biology), Tim McKay (Physics)
Library Analytics for Student Success	Doreen Bradley (UM Library), and Albert Bertram (UM Library)
Arts at Michigan: Arts Engagement Project	Deb Mexicotte
Using LA to Coach Students to "Electrifying" Careers	Jamie Phillips (EECS)
Playful Analytics: Infusing a Learning Management System with Analytics that Motivate Learning and Support Teaching	Barry Fishman (SOE), Mika Lavaque-Manty (Pol. Sci.), Stephanie Teasley (SI)

One example: E^{2}Coach

- Large lecture classes are impersonal – providing generic encouragement and advice
- Student support should be aware of goals background, current status, confidence, trajectory, etc.
- Computer Tailored Communication (based on the Michigan Tailoring System) can provide this at scale.
- Personalization of education with the support of technology is a big LA theme

Two years ago: E²Coach chalkboard



E²Coach has now been offered for three full terms, each time to 1900 students in all of our four large introductory physics courses. We are starting to realize the cycle back through research promised back in September 2011.

E²Coach 1:
Tailored support for physics students

- Built on the *Michigan Tailoring System* developed at UM SPH
- Used LA and MTS to construct "E²Coach": an **E**lectronic **E**xpert coaching system for intro physics courses

http://sitemaker.umich.edu/ecoach

- Original Development Team:
  - Department of Physics
  - CHCR in Public Health
- Project goals:
  - Improved performance and affect for **all** students
  - Cut performance disparities
- Offered to 5000+ students in three terms

The E²Coach I team:
Tim McKay, Kate Miller, Jared Tritz, Madeline Huberth in Physics
Vic Strecher, Ed Saunders, Holly Derry, Mike Nowak at CHCR

How does E²Coach work?

Where the real effort lies

Expertise of hundreds of students, dozens of instructors and behavior change experts

Detailed information about thousands of students and their current status

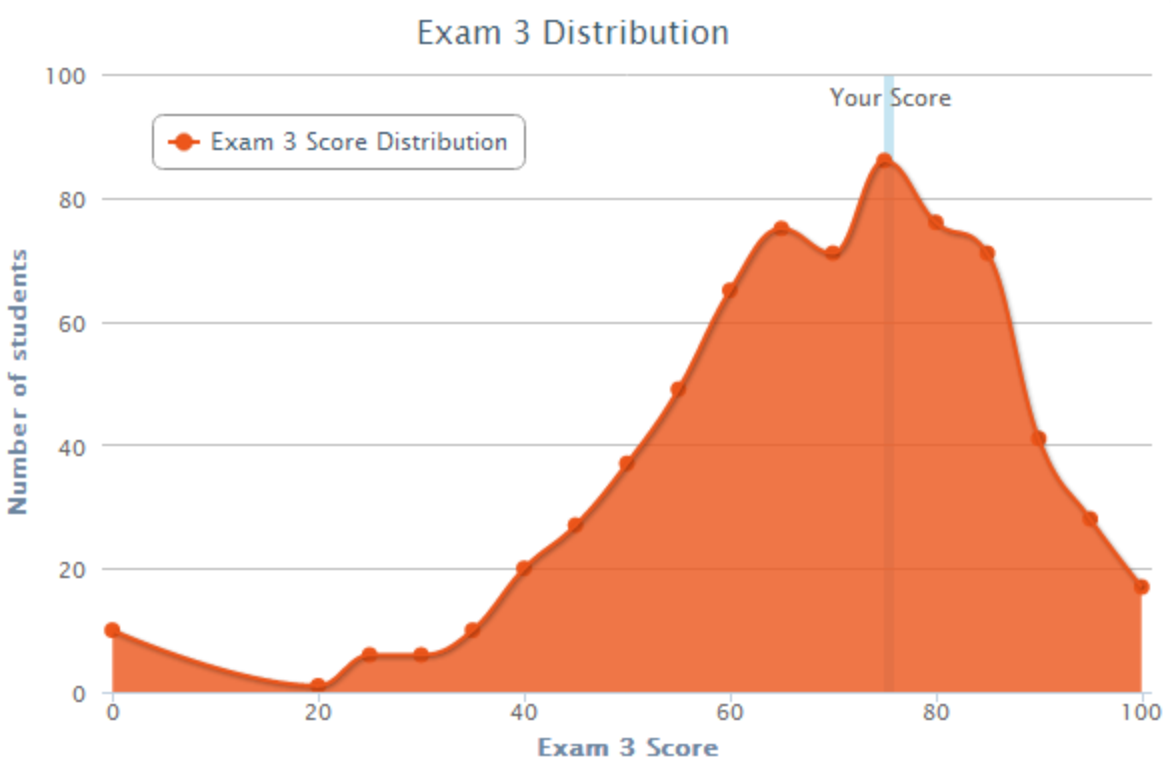
Individually personalized messages: what we all agree we *would* say to each student, if only we could…

The Michigan Tailoring System: a mature open-source software system for creating content designed specifically for an individual based on data about that individual

With the final coming soon, let's come up with a study strategy that will help you to improve your exam scores. E^{2}Coach wants to help make sure your studying goes the way you want it to!

It isn't just about how much time you're spending, but also about *how* you're spending that time. Let's take a minute to reflect:

1. Write down all the things you did to prepare for Exam 3
2. Which of these study techniques worked for you?
3. Which of these didn't work?
4. Are there resources you could be taking advantage of? The Physics Help Room? Office Hours?



Above is the distribution of exam scores for your course, Physics 140.

Below are (What we think are) 'The 6 Most Important Things for Final Exam Studying'

To help you gauge how on track you are for a B that you're aiming for, E^{2}Coach predicts your final grade by using your grades so far. You'll see this updated plot after each exam.

Impact of E^{2}Coach: first three terms

- Historical data shows that GPA in other UM classes is the best performance predictor
- GPA accounted for 32% of the variance in students' final physics grades, whereas when SAT and ACT scores predict only 13% of the variance in students' final physics grades when considered together, without GPA.

- BTE score measures relative success:

$$BTE\left(G_{\text{actual}}, GPA\right) = \frac{G_{\text{actual}} - G_{\text{exp}}^{\text{course}}\left(GPA\right)}{\sigma_{\text{exp}}^{\text{course}}\left(GPA\right)}$$

- Four user groups defined for the first year data: non, low, medium and high users
- Usage based on visits to the system *and* the number of independent weeks visited

Analyses for E²Coach 3 Terms

Table 2. Descriptive Characteristics of the Sampled Population of Physics Students.

Table 3: Descriptive usage characteristics of the user groups by term.

	Winter 2012			Fall 2012		
	Low Users	Moderate Users	High Users	Low Users	Moderate User	High Users
Number of Students	455	298	190	204	228	194
Mean Clicks	3.28 (3.39)	22.69 (11.23)	48.12 (28.46)	17.27 (5.07)	28.68 (10.54)	48.20 (19.72)
Mean Unique Weeks Visited	.86 (.68)	2.90 (.94)	6.51 (1.66)	1.55 (.54)	3.49 (.90)	6.53 (1.53)

	Winter 2013		
	Low Users	Moderate Users	High Users
Number of Students	239	219	207
Mean Clicks	12.01 (8.06)	27.86 (10.83)	50.70 (20.81)
Mean Unique Weeks Visited	1.18 (.79)	3.53 (.80)	6.53 (1.72)

Note: Clickstream data and the number of weeks visited informed the user groups' formation. Low users had clickstreams equaling or less than the median of their term and had two or fewer weeks of visits. High users had clickstreams above their term's median, and visited at least five weeks of the sixteen-week term. Moderate users included the other types of usage behavior.

$$BTE\left(G_{\text{actual}}, GPA\right) = \frac{G_{\text{actual}} - G_{\text{exp}}^{\text{course}}\left(GPA\right)}{\sigma_{\text{exp}}^{\text{course}}\left(GPA\right)}$$

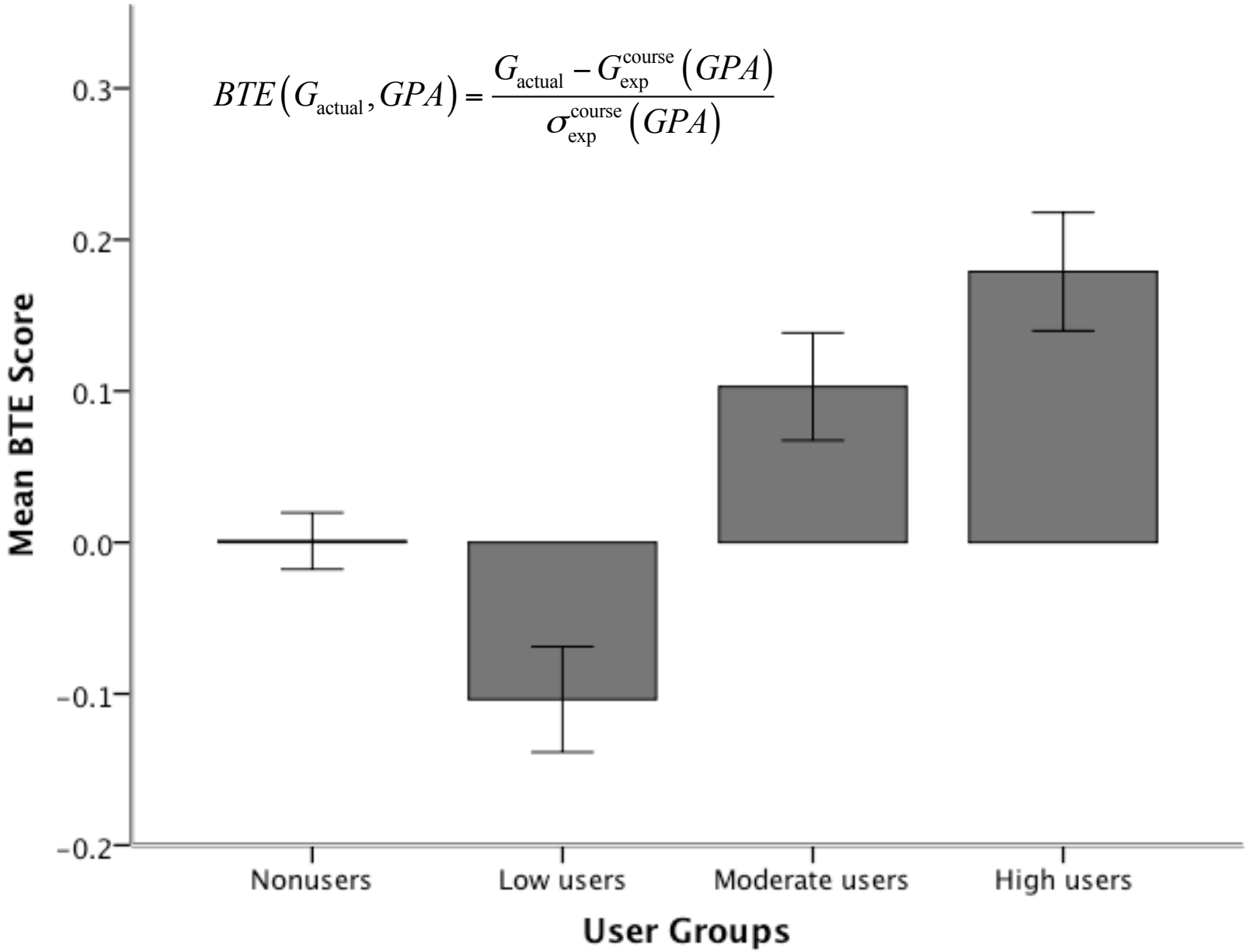
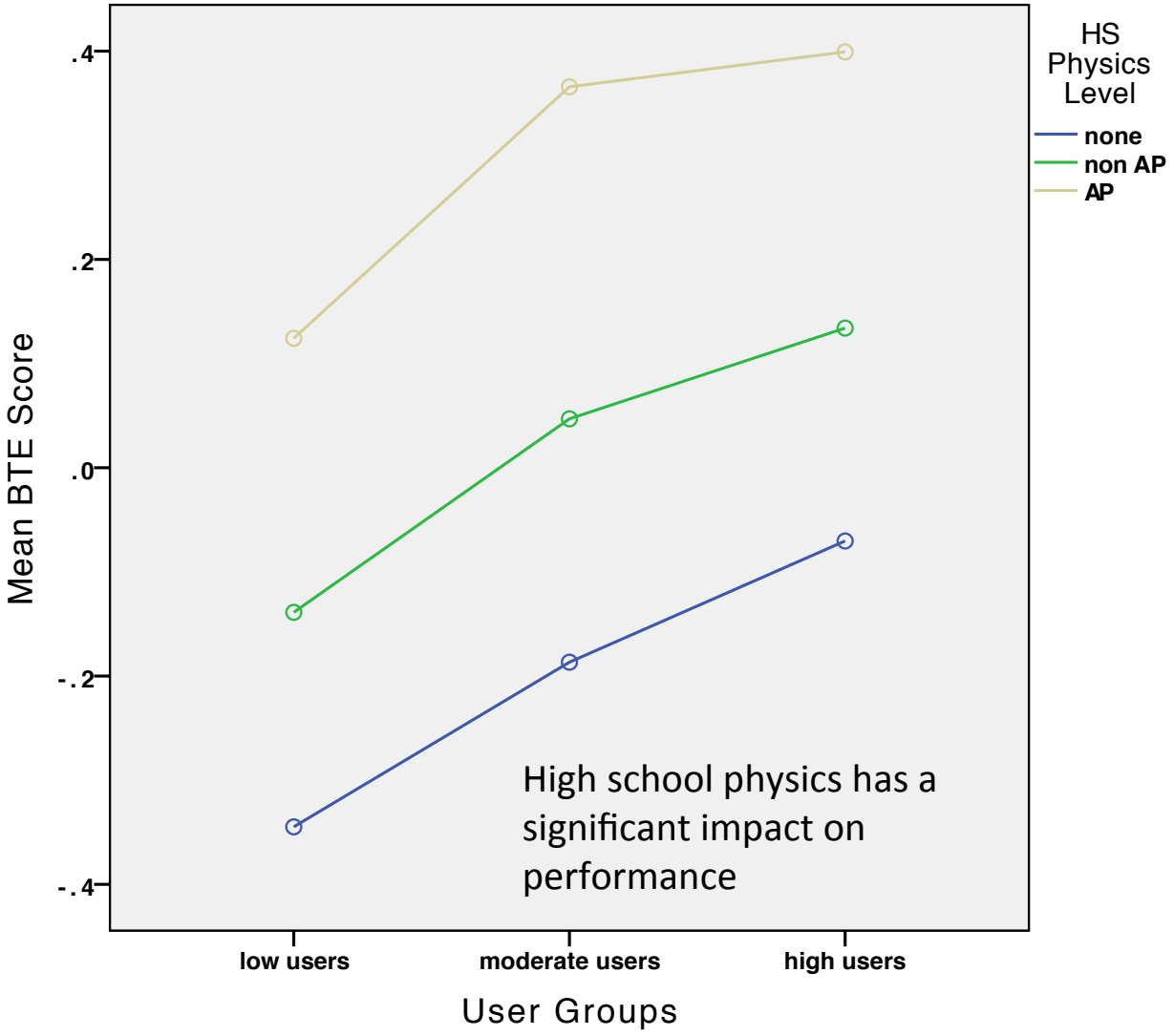


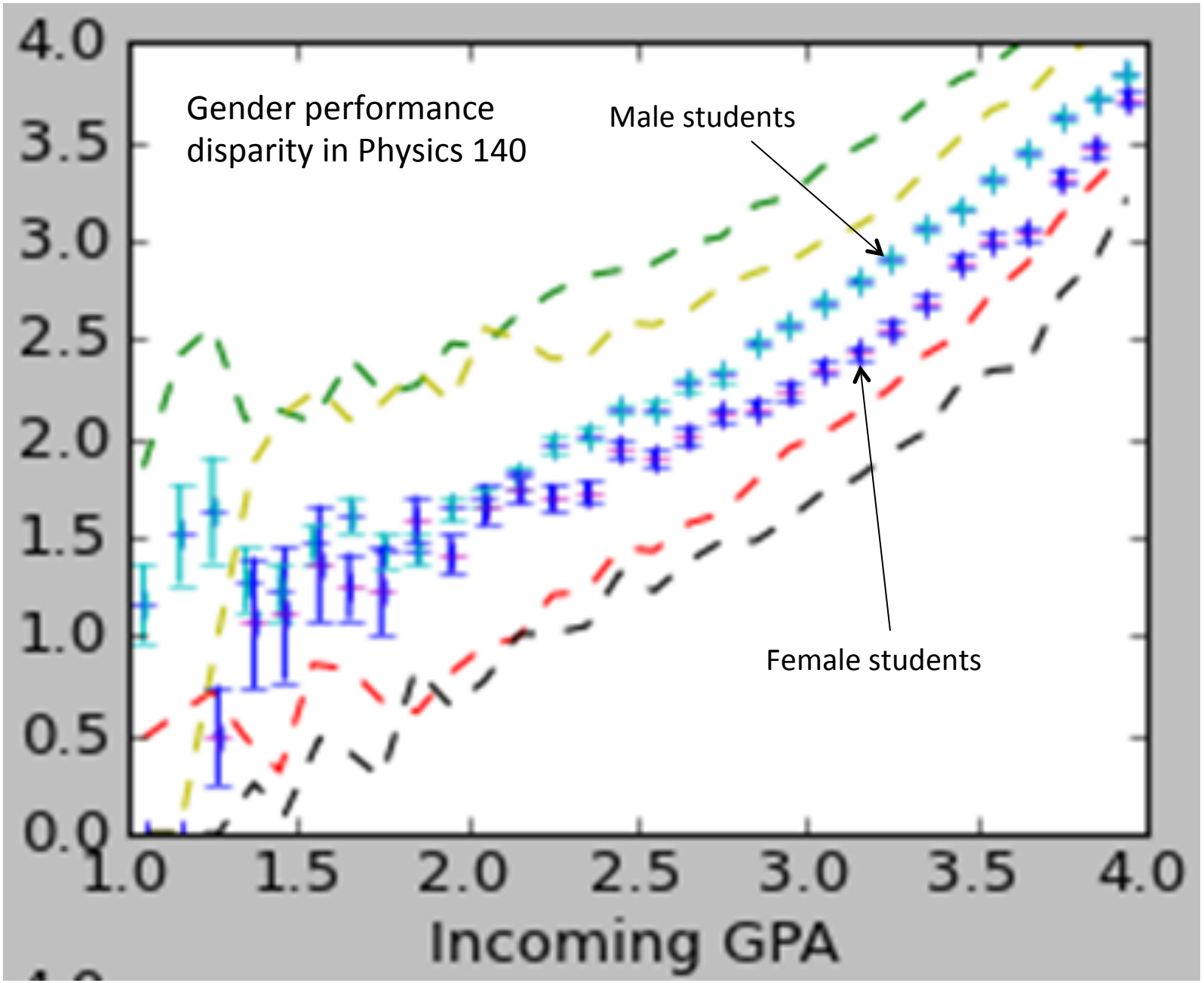
Table 4: Descriptive preparation characteristics of the user groups.

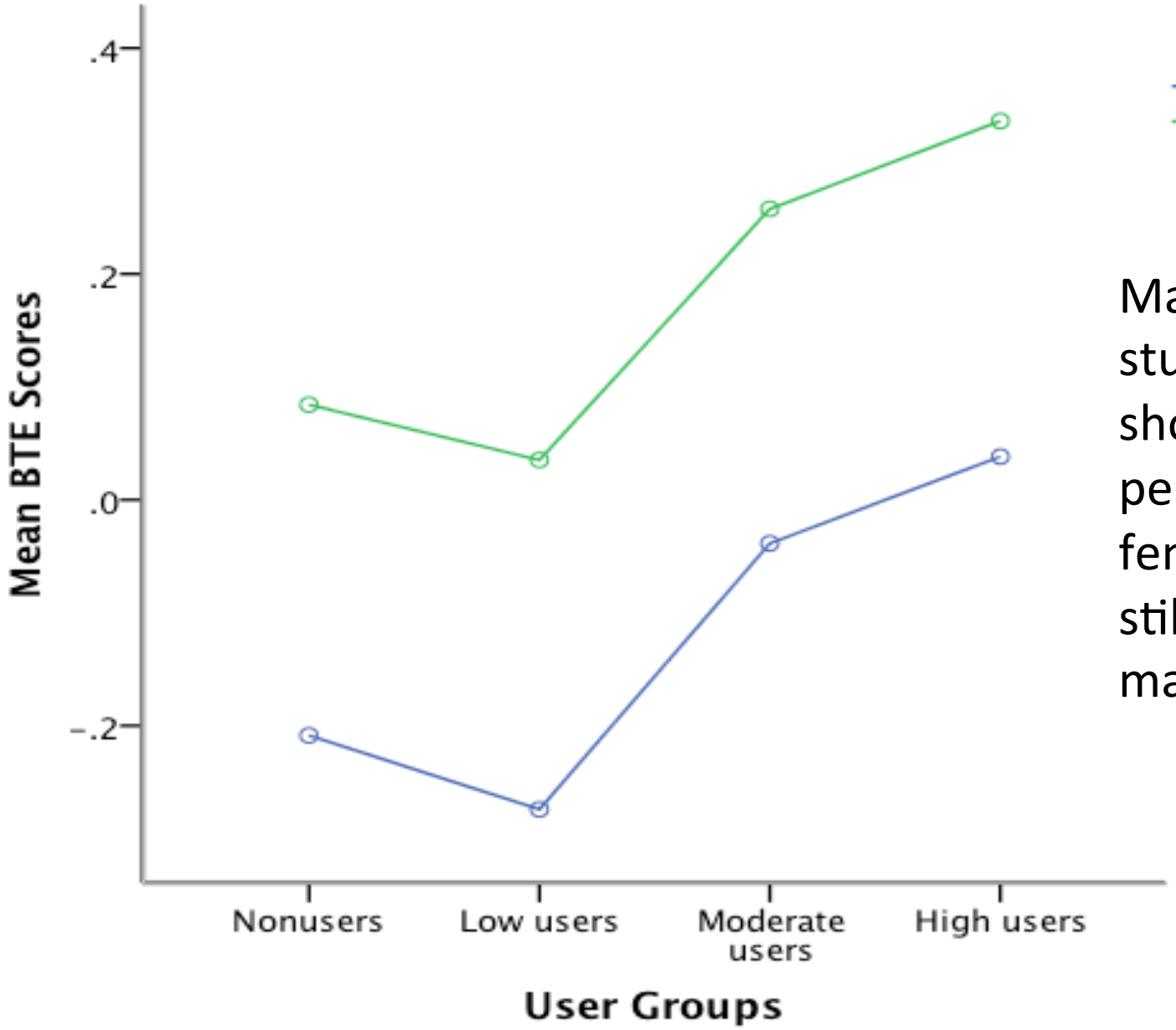
Mean SAT Math S	
Mean ACT Math S	
% HS AP Physics	
% HS BC Calc or I	

Note: Standard dev
deletion of missing



Additional information gathered through E²Coach provides rich research resources


Gender performance disparity in Physics 140
Male students
Female students
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Incoming GPA



Male and Female students both show improved performance, but female students still fall behind male students

This fall: Big E^{2}Coach Expansion

- This term, E^{2}Coach is being offered physics, Chem 130, Stats 250, and MCDB 310
- 5183 students enrolled in these courses today
- For this, we have built a large new E^{2}Coach team including development groups from each course

- Physics: McKay, Tritz, Michelotti, Huberth, Murdock, Debolt, Rosenberg, Chen
- Stats: Gunderson, Caccaglia, Nielsen, Chavez, Mohapatra
- Chem: Wolfe, Shultz, Ingelhardt, Sipowska, Konopko, Brancho
- MCDB: Olsen, Balazovich, Trakimas

Support from ELA (Chem/Bio/Physics) and an NSF TUES-Type I grant (Stats)

Coach Selector

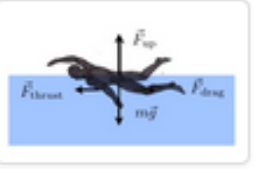
Explore our coached courses!

Fall 2013
Stats 250
ACTIVE

Enter Coach

Fall 2013
Chemistry 130
ACTIVE

Enter Coach



Fall 2013
Physics 140, 240, 135, 235
ACTIVE

Enter Coach

Fall 2013
MCDB 310
ACTIVE

Enter Coach

View Archived Coaches...

Stats 250: Fall 2013 COACHES LOGOUT: TAMCKAY

Chem 130: Fall 2013 COACHES LOGOUT: TAMCKAY

MCDB 310: Fall 2013 COACHES LOGOUT: TAMCKAY

Inbox message

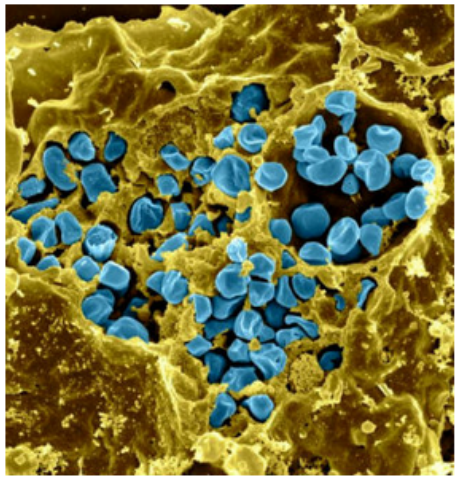
- [Study Tips] Lecture
- [Study Tips] Science Learning Center
- [Study Tips] Getting Help

Welcome to the MCDB310 E²Coach!

Home | Calendar | Grade Calculator | MCDB310 Attitudes | Resources | FAQ

Welcome to E²Coach for Introduction to Biochemistry! We have a ton of tools to share with you to make this tricky class an little easier to handle. Here's what you can expect:

- Informative messages tailored to your goals and experiences
- Advice from MCDB310's most successful past students
- Detailed score breakdowns with visual comparisons and analysis
- Tips from your professors on studying and exam taking
- Resources to help you learn the material
- An up-to-date class calendar with reminders



CC image courtesy of NIAID

You have already taken the E²Coach initial survey. If you'd like to verify that all your information is still correct, click here.

Click here to answer questions about MCDB310 specifically. Completing this survey releases your first message.

Check out our rotating tips below! You'll see a new one

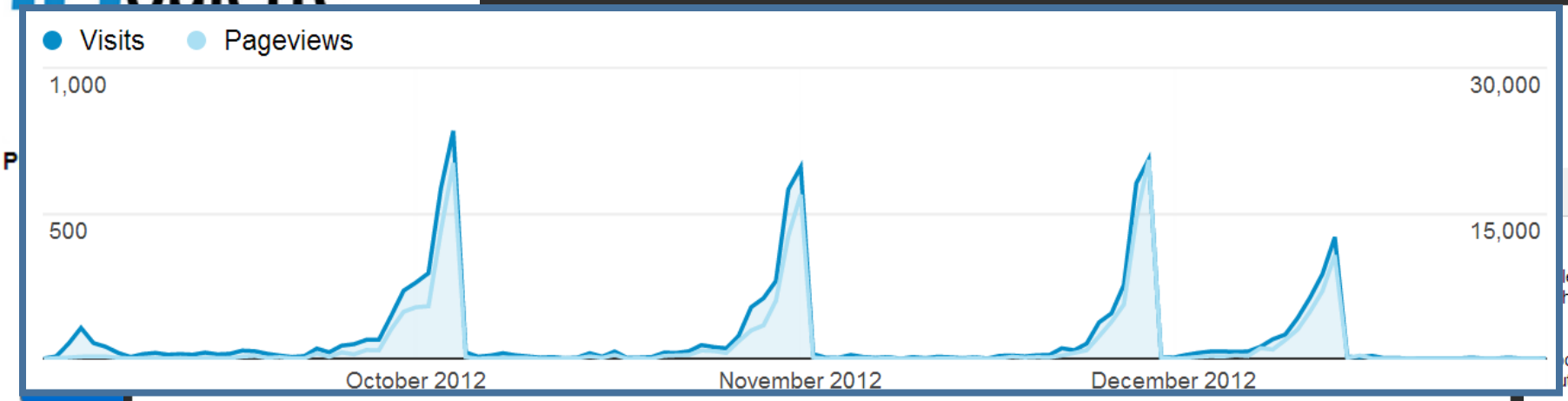
into the scientific literature has been made to show you what NOT to do, but also for your amusement.

Selections | Problems | My Summary

Welcome! This site serves random problems from past exams given in courses at the University of Michigan.

Problem Roulette

Selections | Problems | My Summary



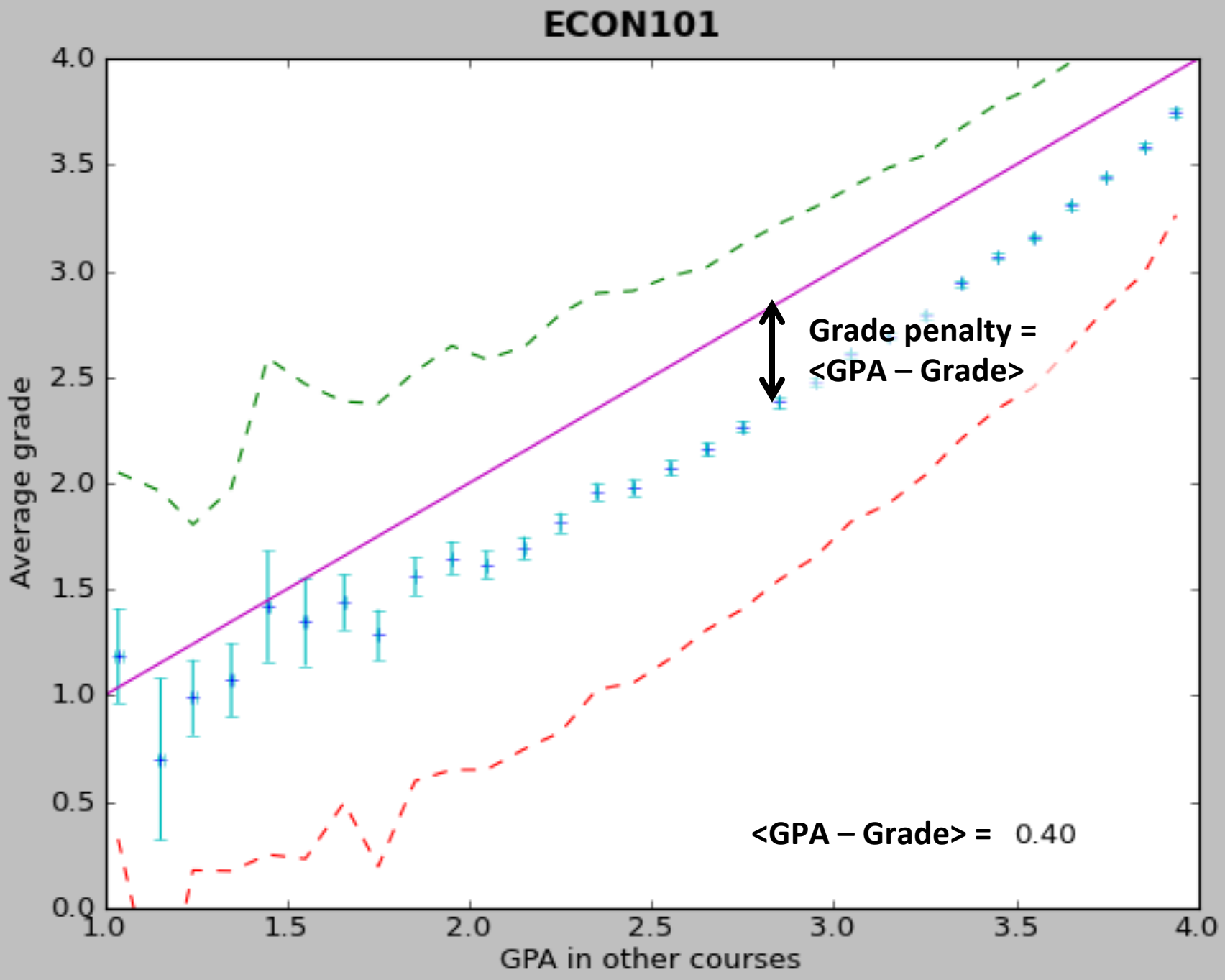
You have attempted **5** problems and you got **3** right.
Your accuracy is **60%**.
Your average time per problem is **38.8** seconds.

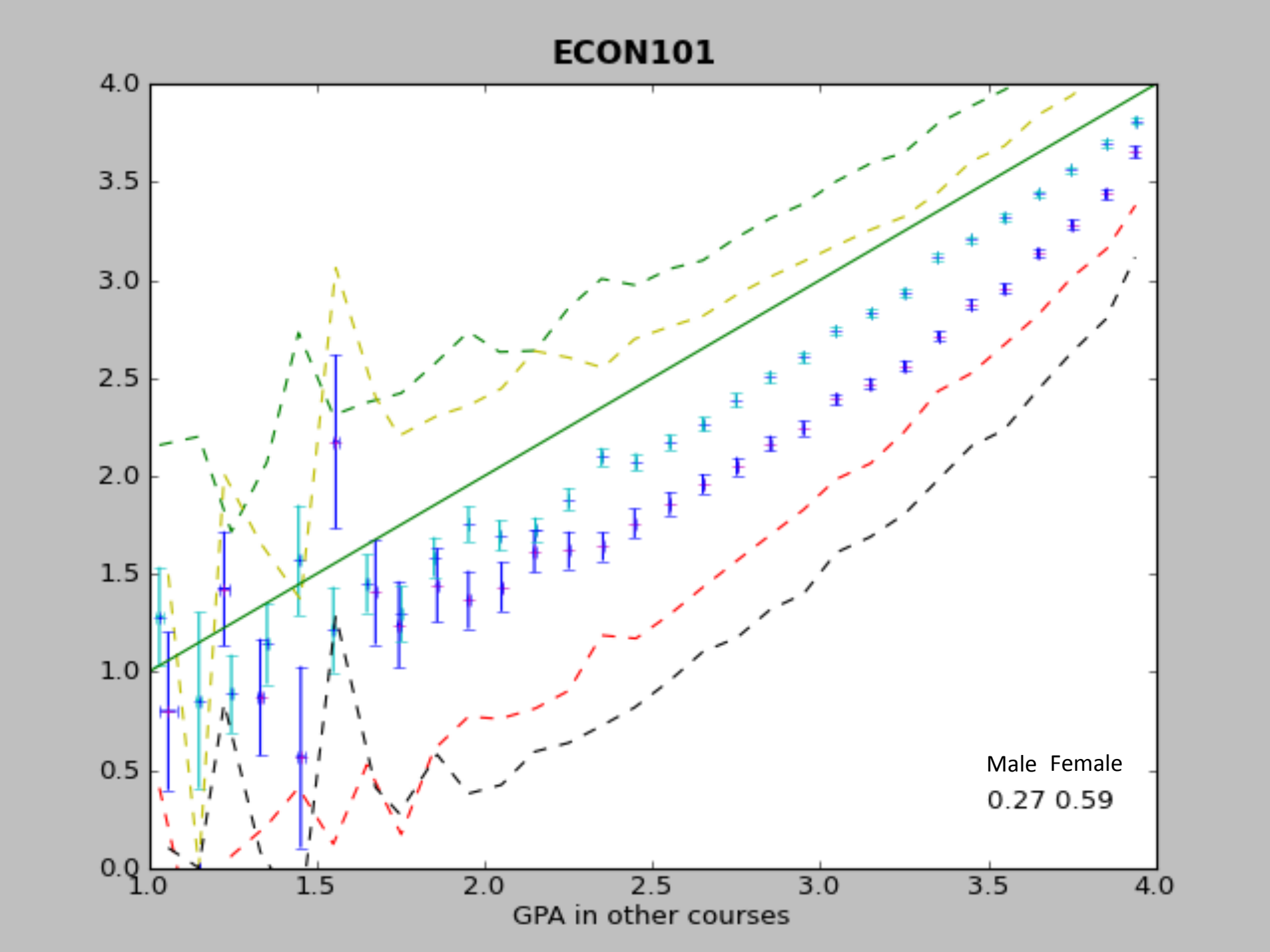
Show: All

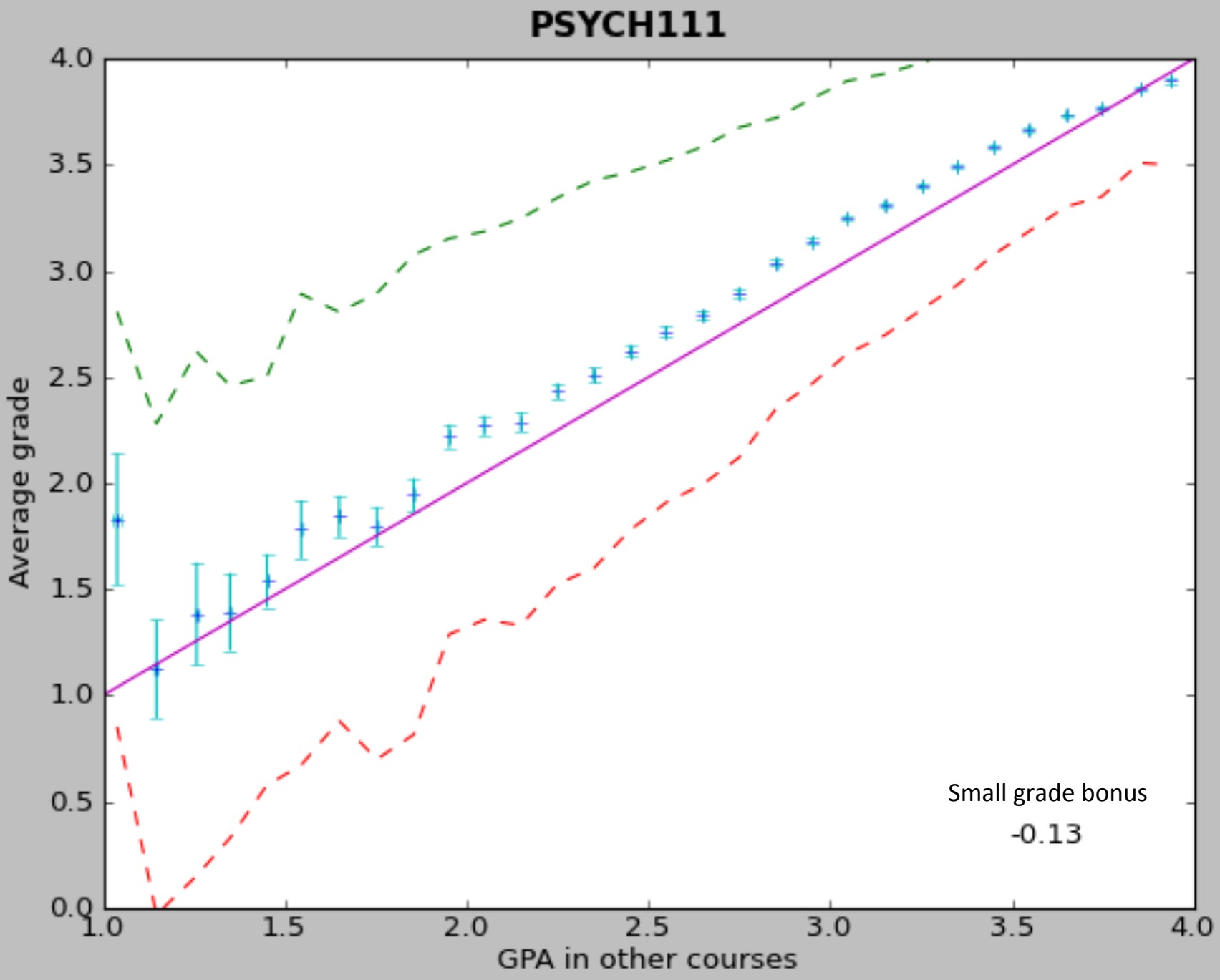
Name	Date	Your Answer	Correct Answer	Time (seconds)
Stats 250 Exam 1 F12 Problem 3	2013-09-12 13:10:01	B	B	19
UM Physics 135 Midterm 2 Fall 11 Problem 14	2013-08-28 10:50:01	D	D	16
UM Physics 135 Midterm 2 Fall 11 Problem 10	2013-08-16 14:41:48	C	C	83
UM Physics 135 Midterm 2 Fall 11 Problem 12	2013-08-15 14:23:48	D	E	36
UM Physics 135 Midterm 1 Fall 11 Problem 19	2013-08-15 10:28:50	C	D	40

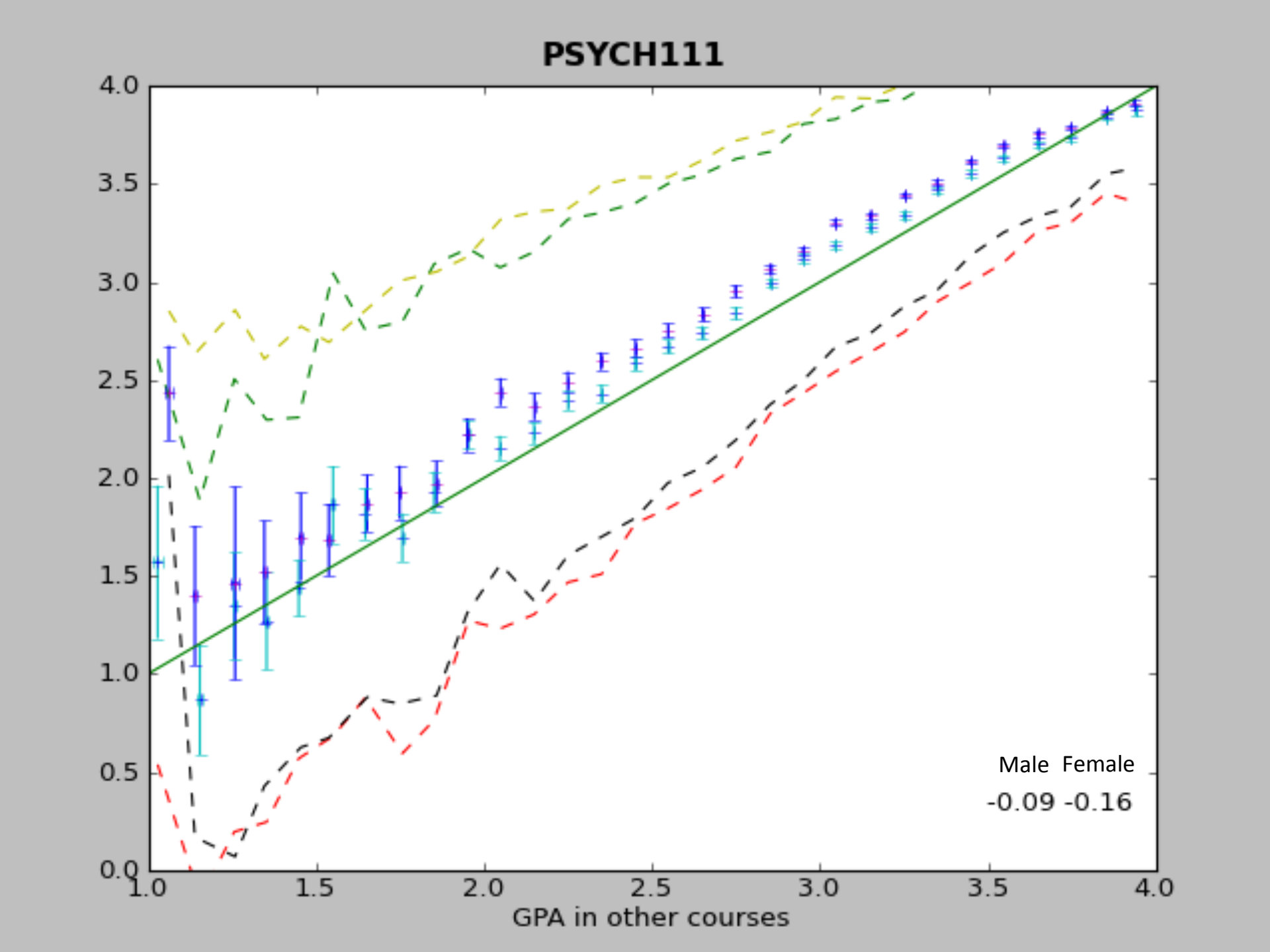
Winter 2013 LA Fellows Program

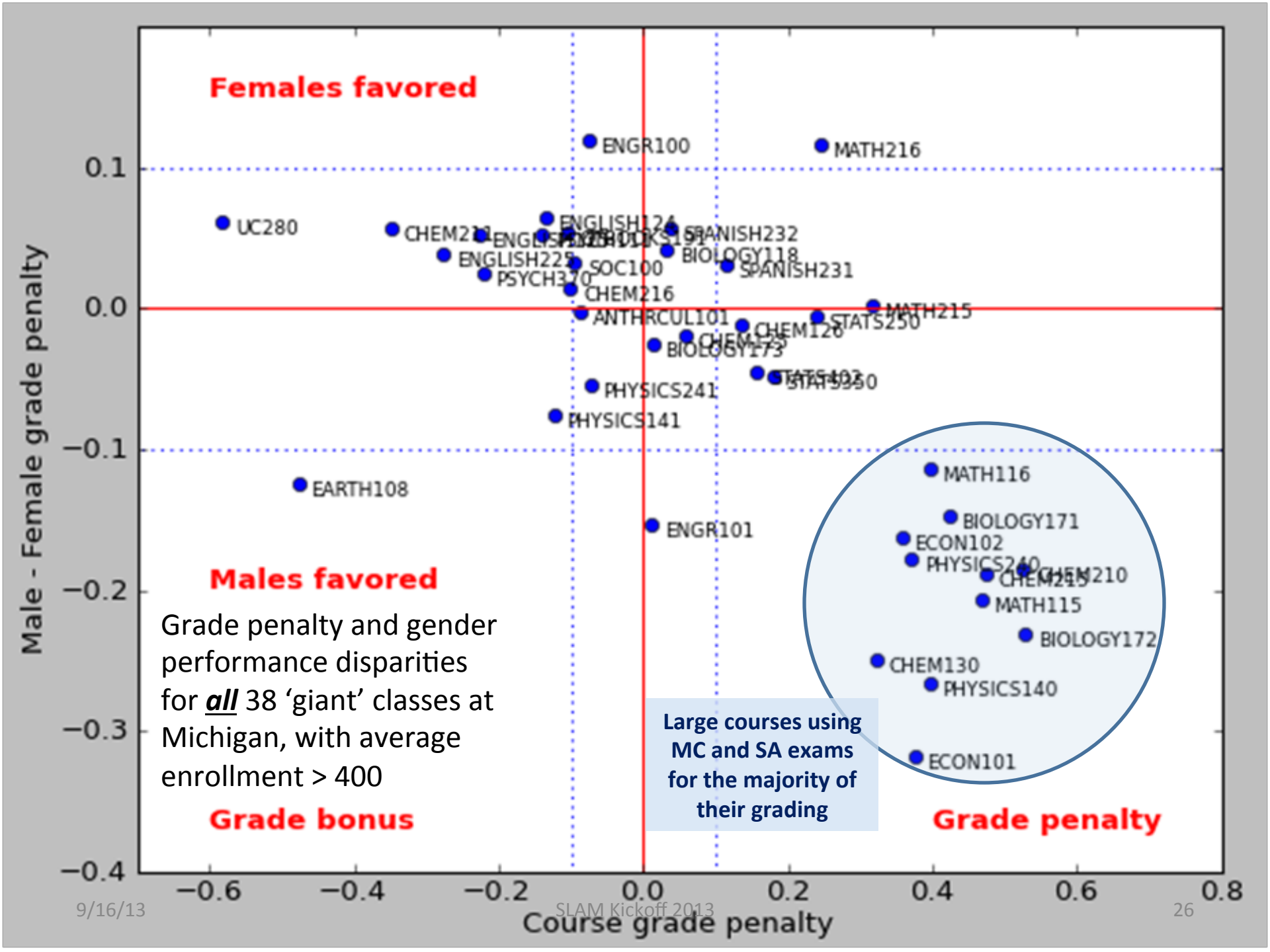
- Learning Analytics Fellows program
  - Winter 2013, two hours/ week, projects and training
  - 17 senior & 14 junior fellows, most in teams
- Discussions of IRB, privacy, ethics, statistics, analysis approaches etc.
- One immediate consequence of the Fellows program – larger scale analysis of student performance patterns in classes
- Examined chosen classes for the relation between preparation and performance


ECON101
Average grade
GPA in other courses
Grade penalty =
<GPA – Grade>
<GPA – Grade> = 0.40
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0


ECON101
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
GPA in other courses
Male Female
0.27 0.59

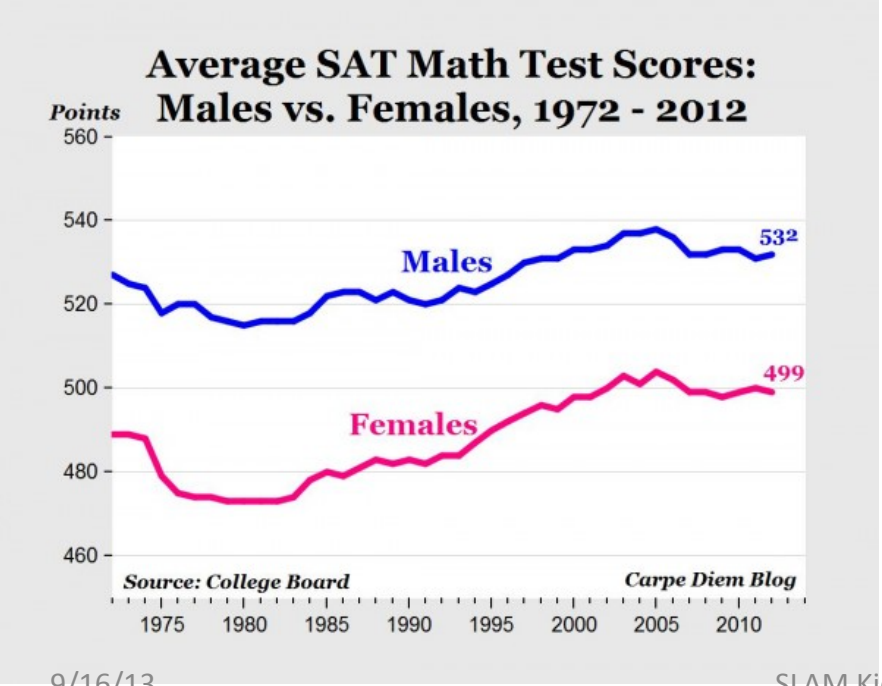

PSYCH111
Average grade
GPA in other courses
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Small grade bonus
-0.13


PSYCH111
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
GPA in other courses
Male Female
-0.09 -0.16


Females favored
Males favored
Grade bonus
Grade penalty
Grade penalty and gender performance disparities for ***all*** 38 'giant' classes at Michigan, with average enrollment > 400
Large courses using MC and SA exams for the majority of their grading
ENGR100
MATH216
UC280
CHEM211
ENGLISH124
SPANISH232
BIOLOGY118
ENGLISH225
SOC100
SPANISH231
PSYCH370
CHEM216
MATH215
ANTHRCUL101
CHEM128
STATS250
BIOLOGY173
PHYSICS241
PHYSICS141
EARTH108
ENGR101
MATH116
BIOLOGY171
ECON102
PHYSICS240
CHEM210
MATH115
BIOLOGY172
CHEM130
PHYSICS140
ECON101
Male - Female grade penalty
Course grade penalty
0.1
0.0
−0.1
−0.2
−0.3
−0.4
−0.6
−0.4
−0.2
0.0
0.2
0.4
0.6
0.8

What's going on here?

- In the US, women 'underperform' in many standardized testing environments



- Stereotype threat in socially constructed environments can easily cause this kind of ~10% performance difference
- The 'law-like' prevalence of these disparities challenges acultural explanations
- **Could changing evaluative style change this performance pattern?**

Learning Analytics Fellows Program

Winter 2013

Fridays, 11:00 a.m. - 1:00 p.m.

(Sessions with * before the date will consist of a meeting of the Fellows followed by attendance at the SLAM presentation).

LA Fellows Site: http://tiny.cc/LAfellows
SLAM Site: www.crlt.umich.edu/slam
SLAM talks from last year: http://sitemaker.umich.edu/slam/schedule

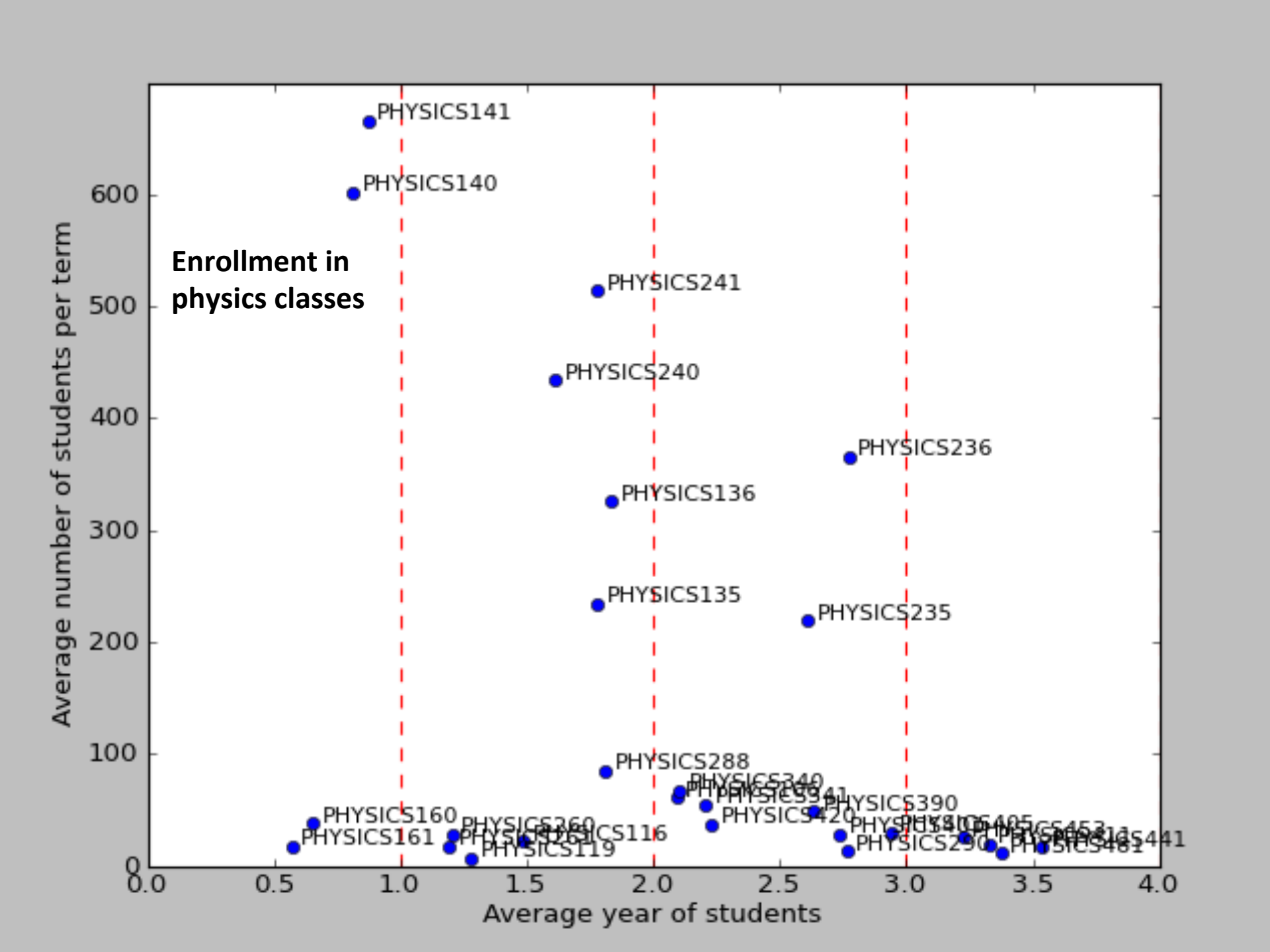
If you have trouble accessing the editing functions of the Google Site, go to https://sites.google.com/a/umich.edu and click on the Learning Analytics Fellows site there. I have no idea why the site sometimes doesn't recognize that you should have editing privileges. (RN)

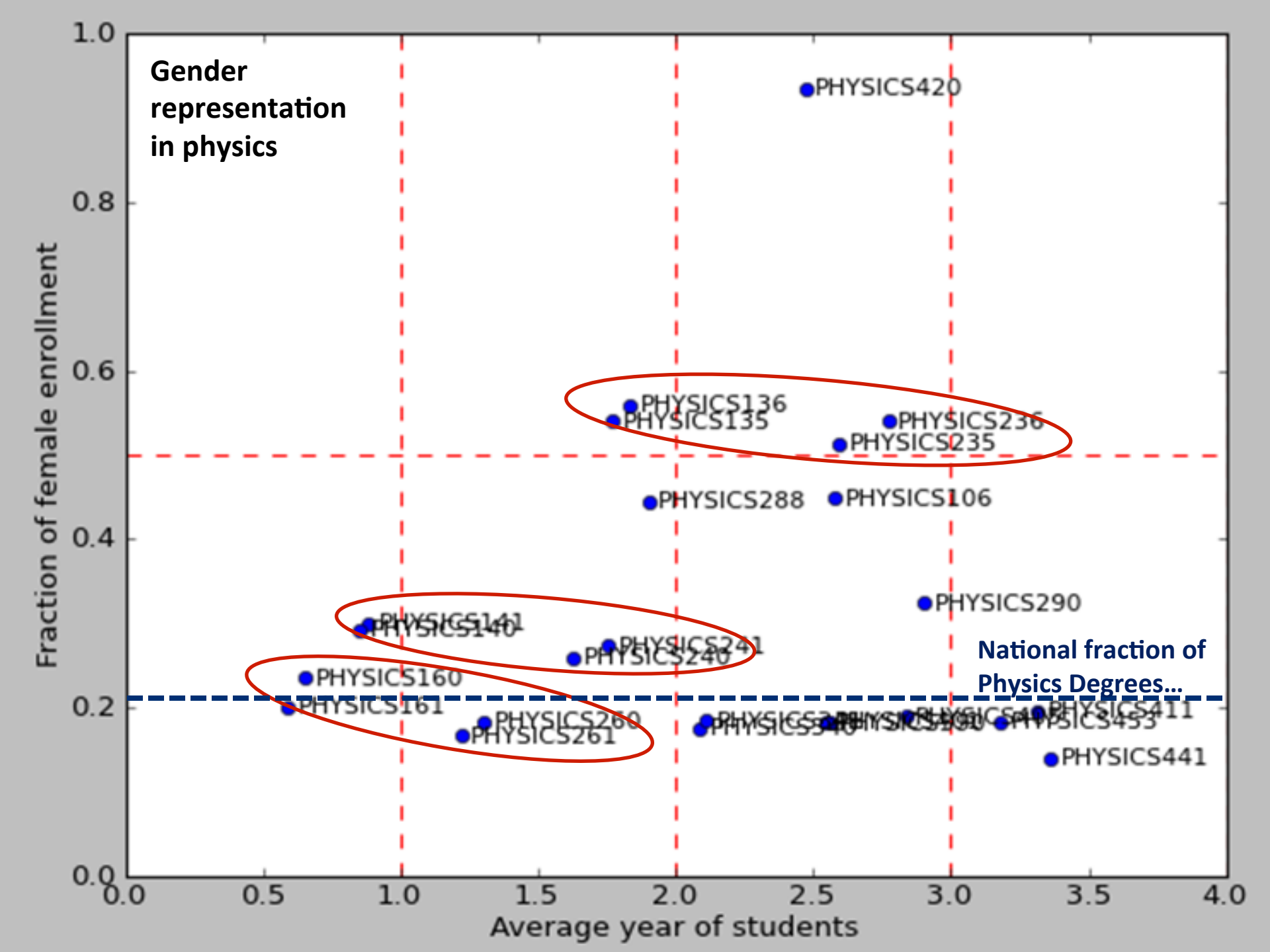
By the end of this program, Fellows will:

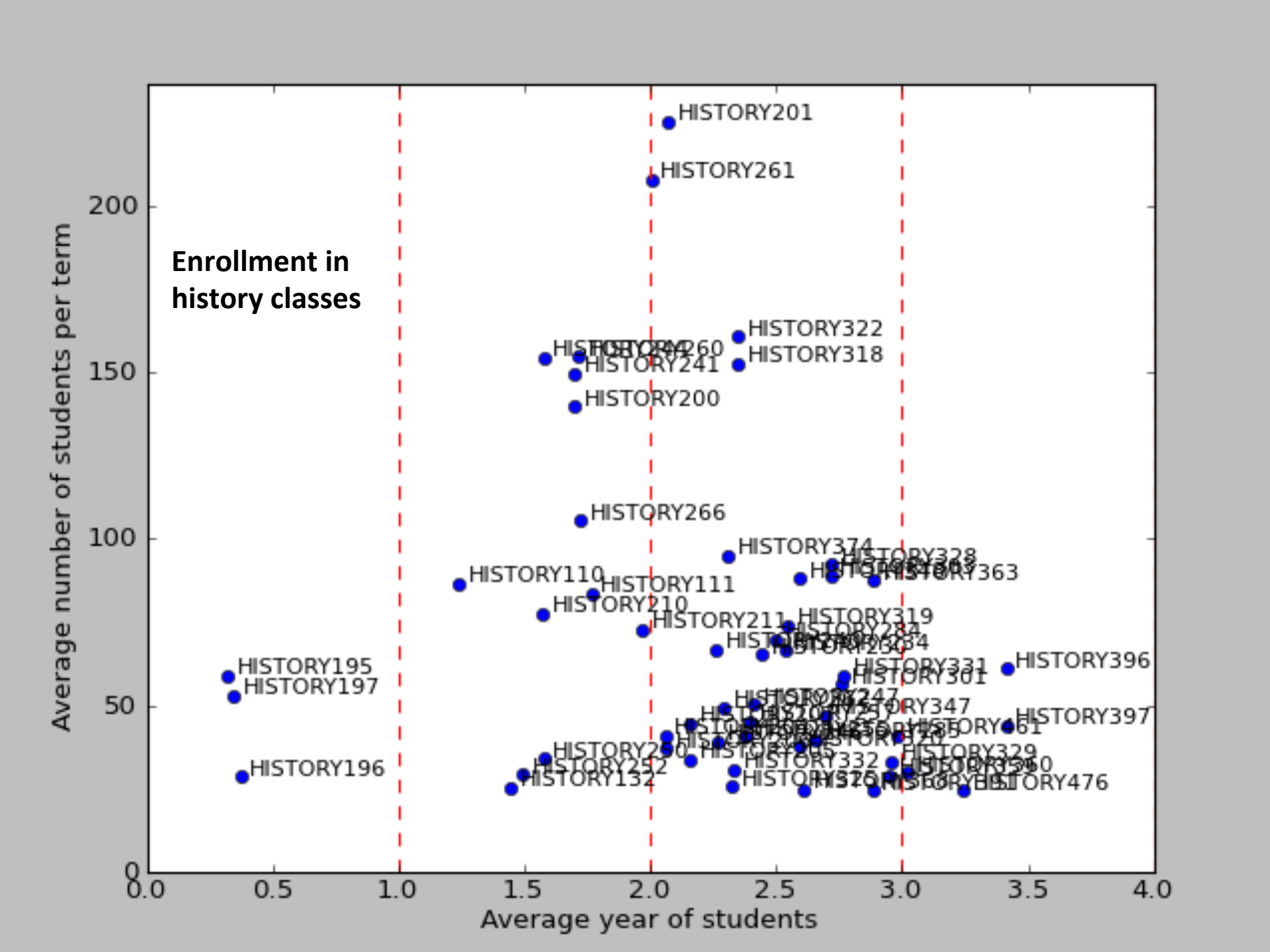
- Be able to identify potential data sources from their teaching or professional work.
- Have explored data sets relevant to their teaching/professional work.
- Develop ideas for ways to apply learning analytics to improve teaching and learning at U-M.
- Be able to develop a proposal for an analytics project that could be submitted for an ELA (Exploring Learning Analytics) or Investigating Student Learning (ISL) Grant that demonstrates an understanding of quasi-experimental methods, privacy concerns and the future impact of the project.
- Develop a visualization describing their projects, results and future plans

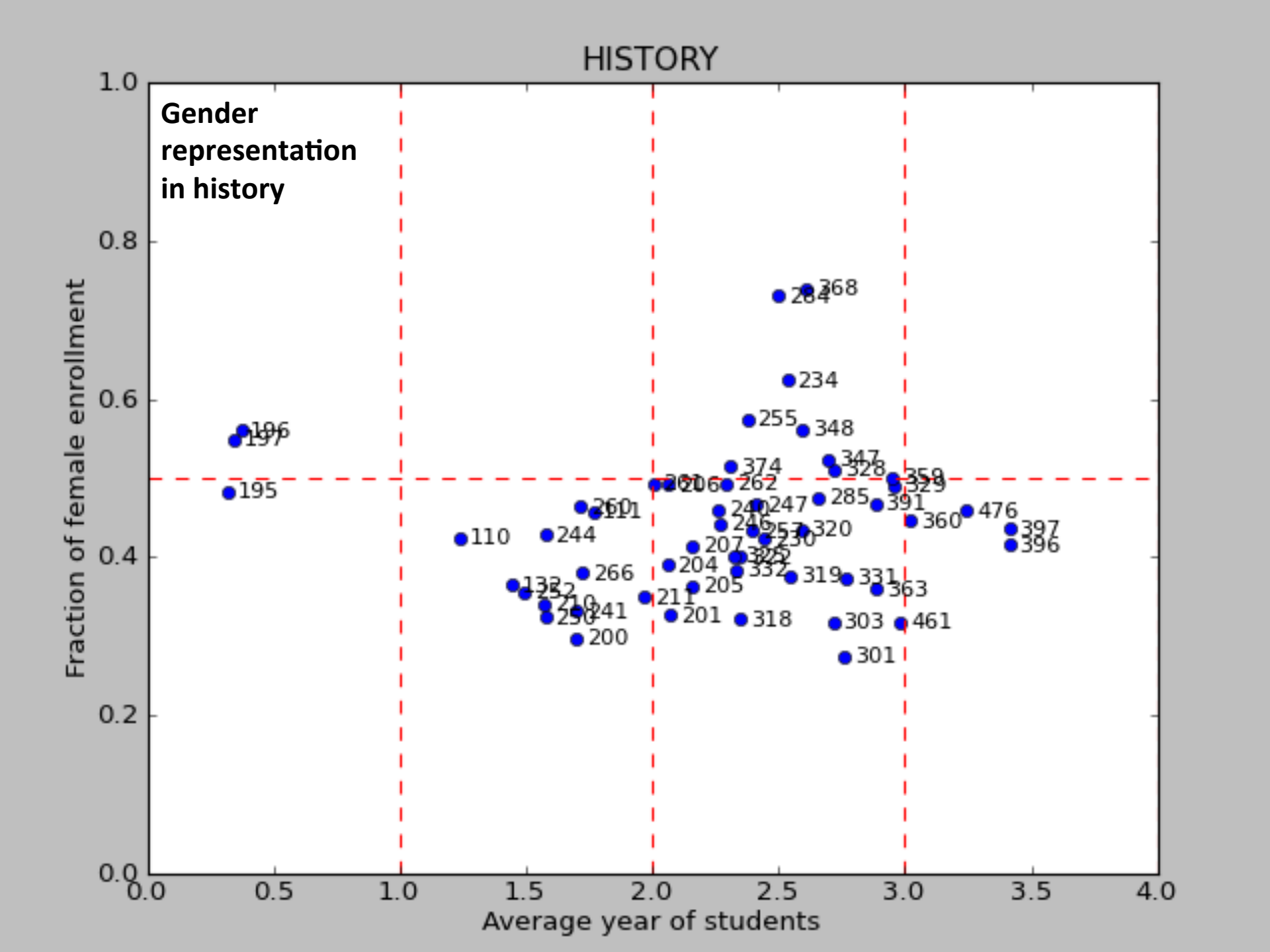
New work on student trajectories

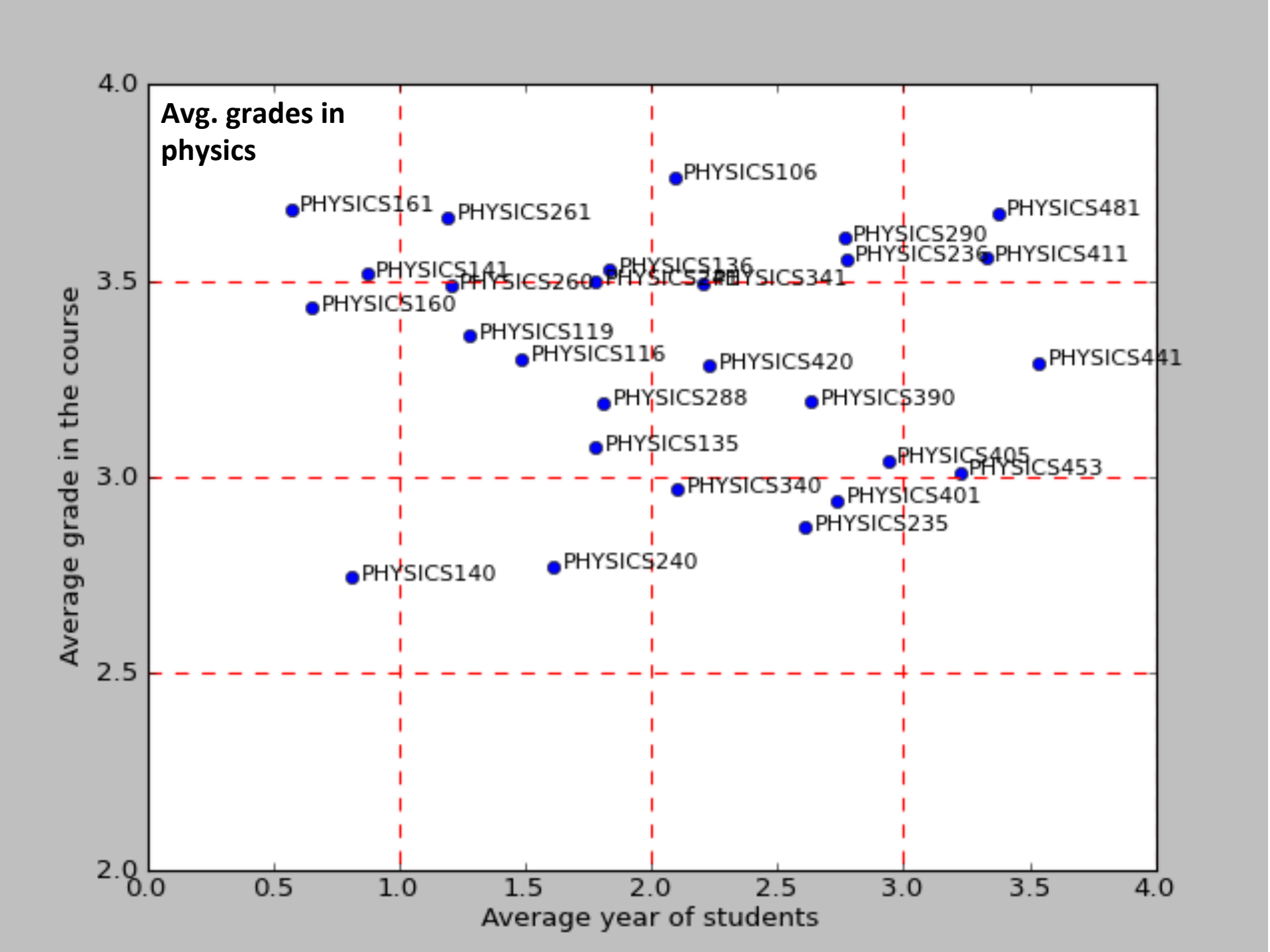
- Bringing together student records for all courses over the 1996-2012 period
- Examining how students move through the course sequences in a department
- Beginning to characterize individual student progression in more personalized ways
- How are they doing compared to similar students following comparable paths through the campus?

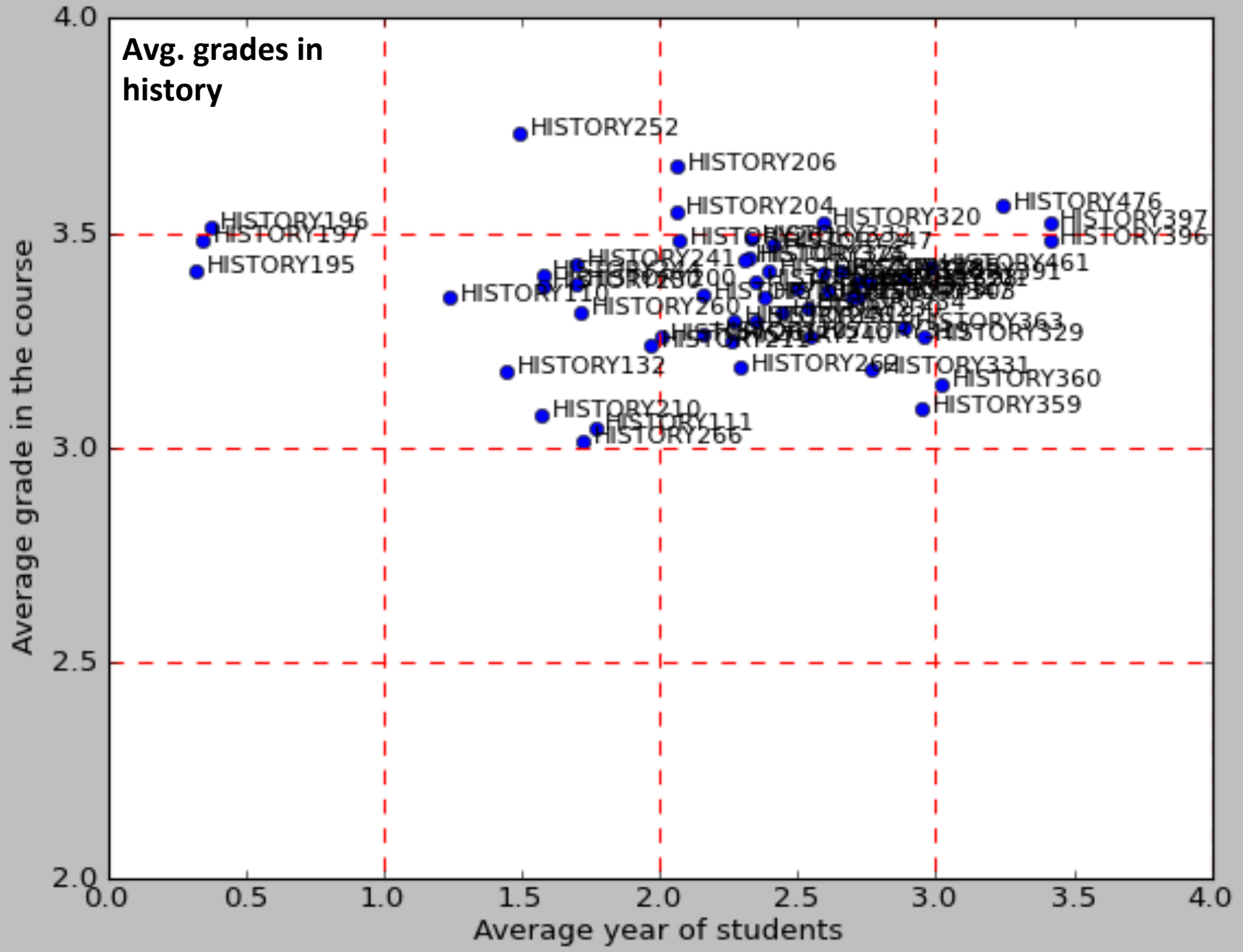

Enrollment in physics classes
Average number of students per term
Average year of students
0
100
200
300
400
500
600
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
PHYSICS141
PHYSICS140
PHYSICS241
PHYSICS240
PHYSICS236
PHYSICS136
PHYSICS135
PHYSICS235
PHYSICS288
PHYSICS390
PHYSICS160
PHYSICS161
PHYSICS116
PHYSICS119

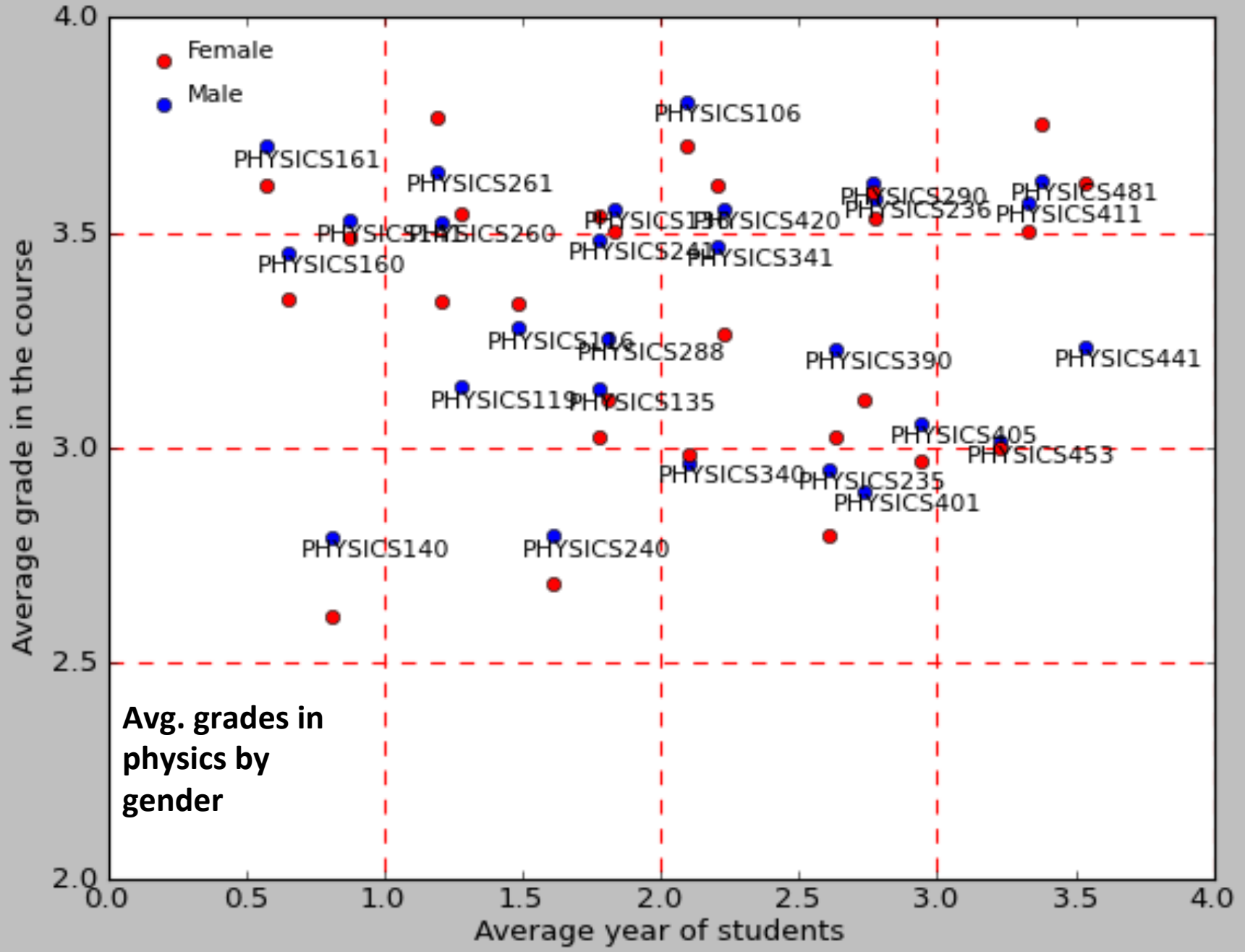

Gender representation in physics
PHYSICS420
PHYSICS136
PHYSICS135
PHYSICS236
PHYSICS235
PHYSICS288
PHYSICS106
PHYSICS290
PHYSICS241
PHYSICS240
PHYSICS160
PHYSICS161
PHYSICS260
PHYSICS261
PHYSICS411
PHYSICS453
PHYSICS441
National fraction of Physics Degrees...
Fraction of female enrollment
Average year of students
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

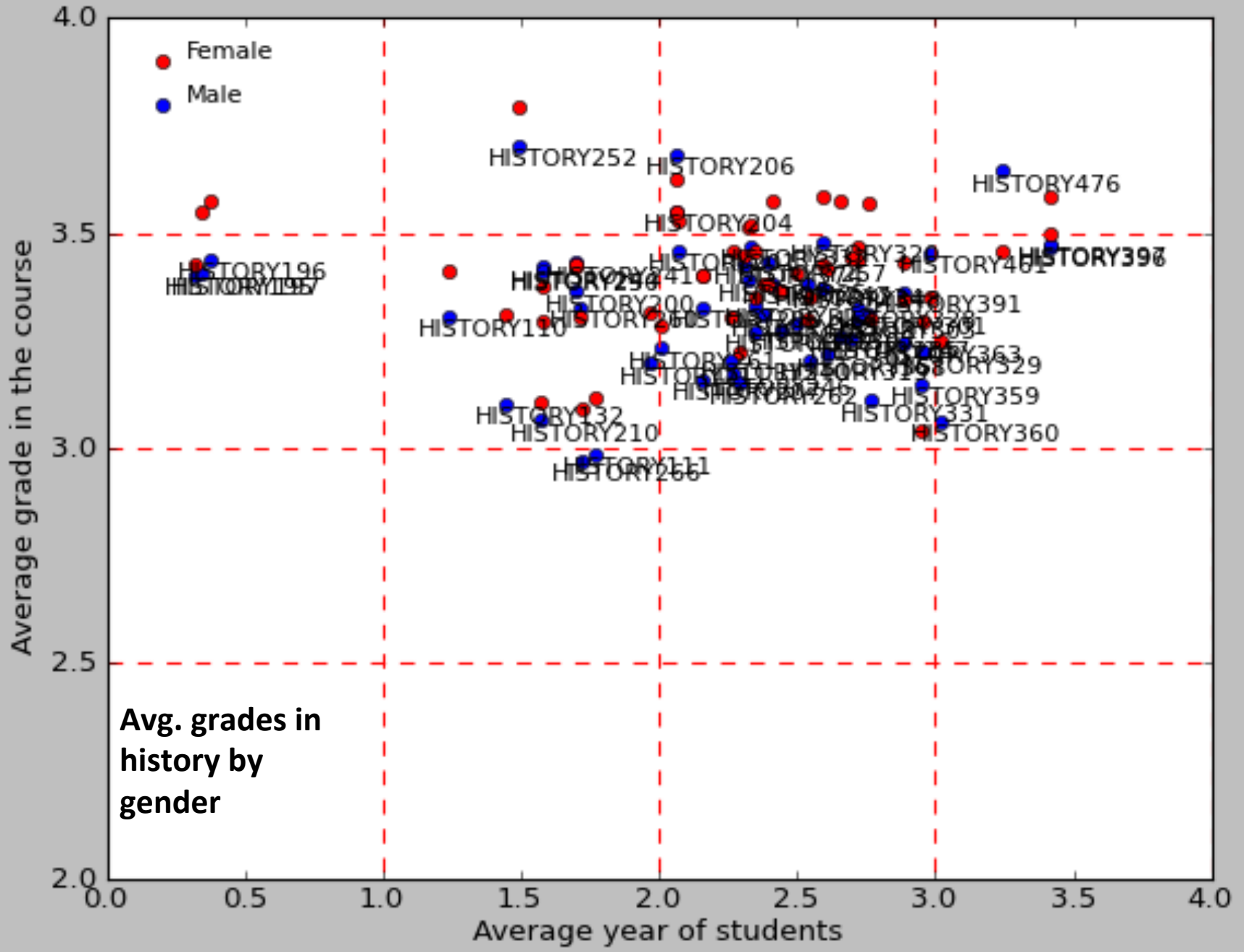

Enrollment in history classes
Average number of students per term
Average year of students
0
50
100
150
200
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
HISTORY201
HISTORY261
HISTORY322
HISTORY318
HISTORY241
HISTORY200
HISTORY266
HISTORY374
HISTORY110
HISTORY111
HISTORY210
HISTORY211
HISTORY319
HISTORY195
HISTORY197
HISTORY331
HISTORY396
HISTORY301
HISTORY347
HISTORY397
HISTORY196
HISTORY252
HISTORY132
HISTORY332
HISTORY329
HISTORY476

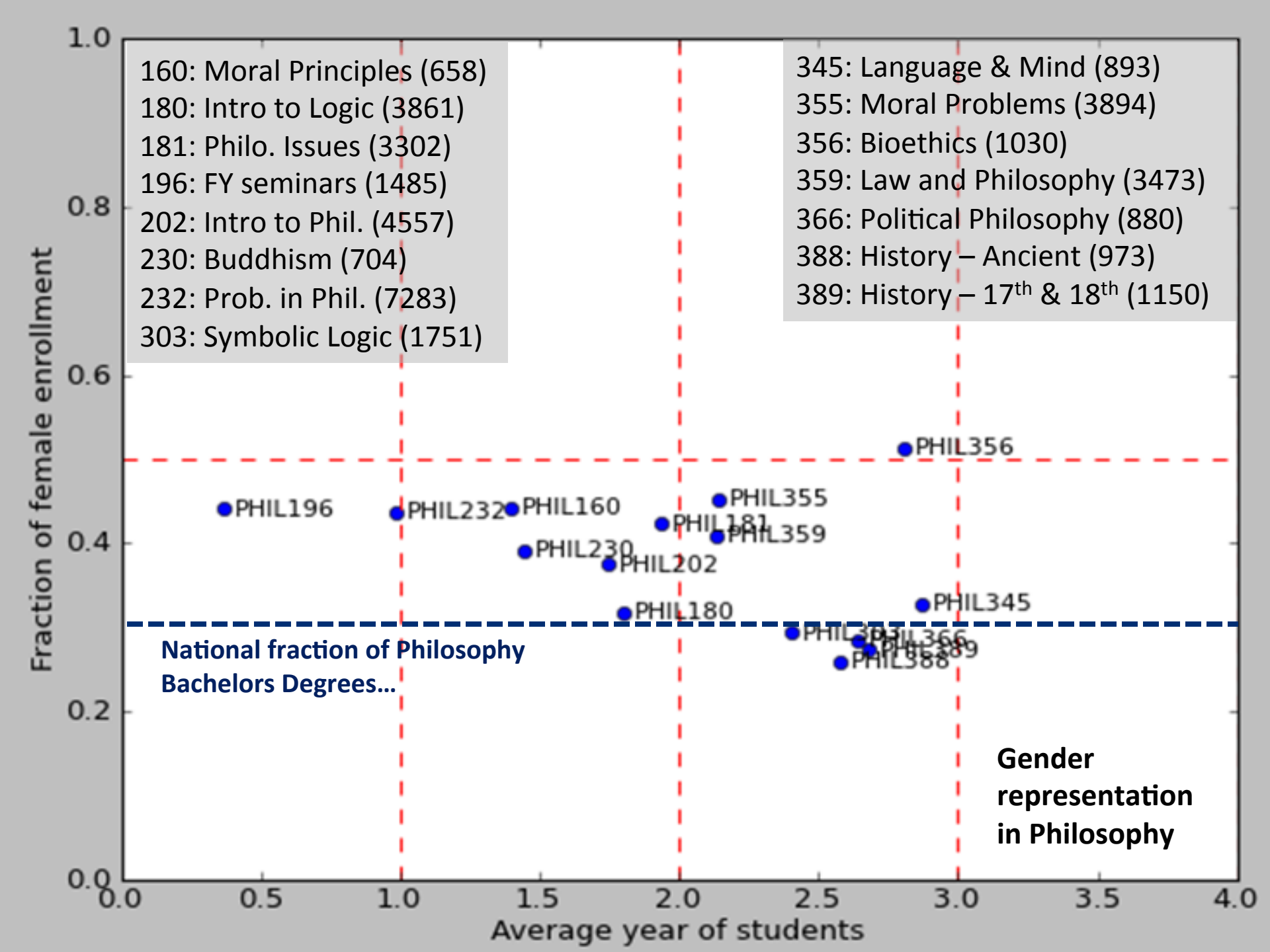

HISTORY
Gender representation in history
Fraction of female enrollment
Average year of students
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
368
284
234
255
348
374
347
328
359
329
262
247
285
391
476
360
397
396
320
110
244
266
204
319
331
363
205
211
201
318
303
461
301
200
195

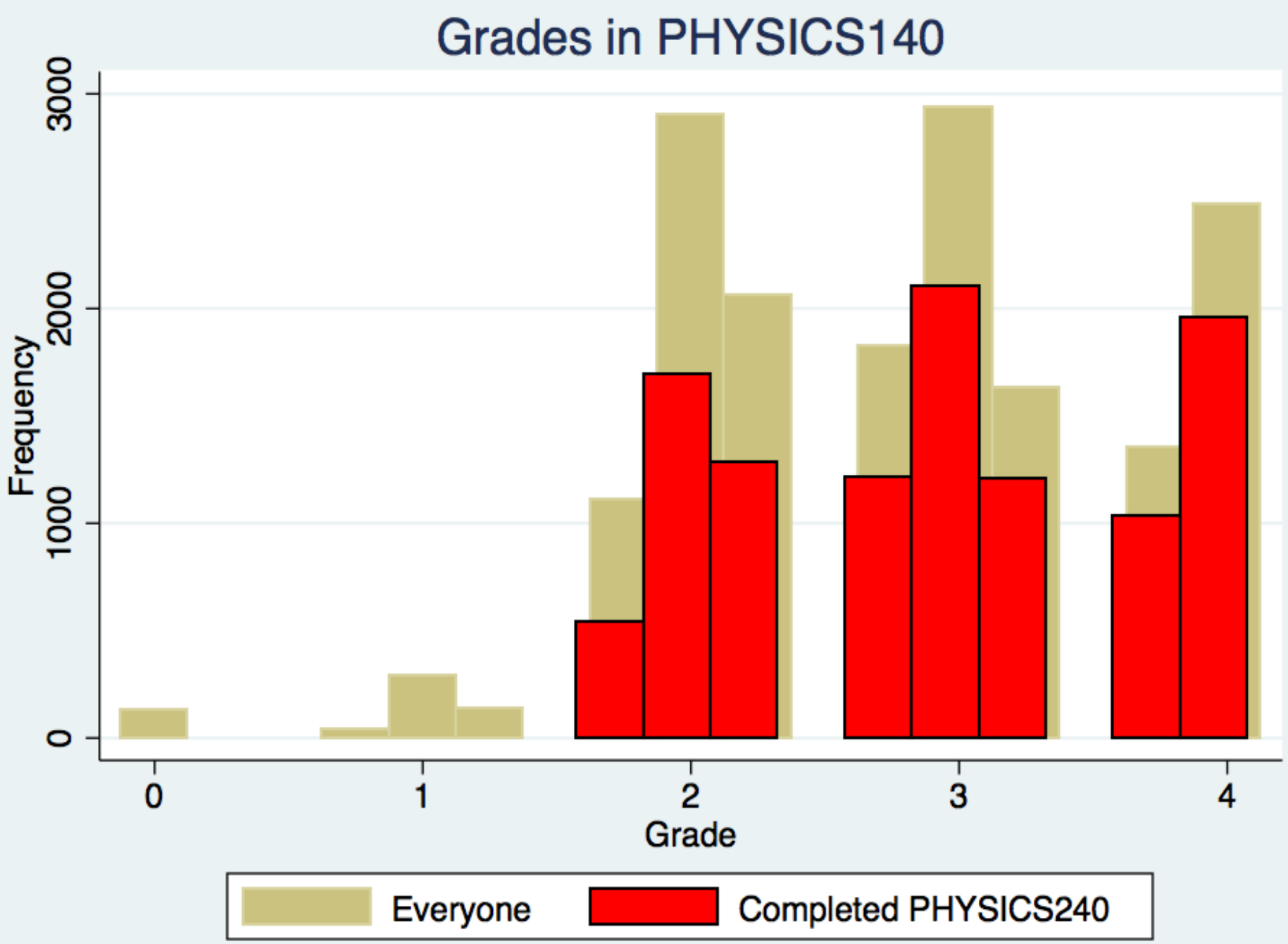

Avg. grades in physics
PHYSICS106
PHYSICS161
PHYSICS261
PHYSICS481
PHYSICS290
PHYSICS236
PHYSICS411
PHYSICS141
PHYSICS136
PHYSICS160
PHYSICS119
PHYSICS116
PHYSICS420
PHYSICS441
PHYSICS288
PHYSICS390
PHYSICS135
PHYSICS405
PHYSICS453
PHYSICS340
PHYSICS401
PHYSICS235
PHYSICS240
PHYSICS140
Average grade in the course
Average year of students
4.0
3.5
3.0
2.5
2.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

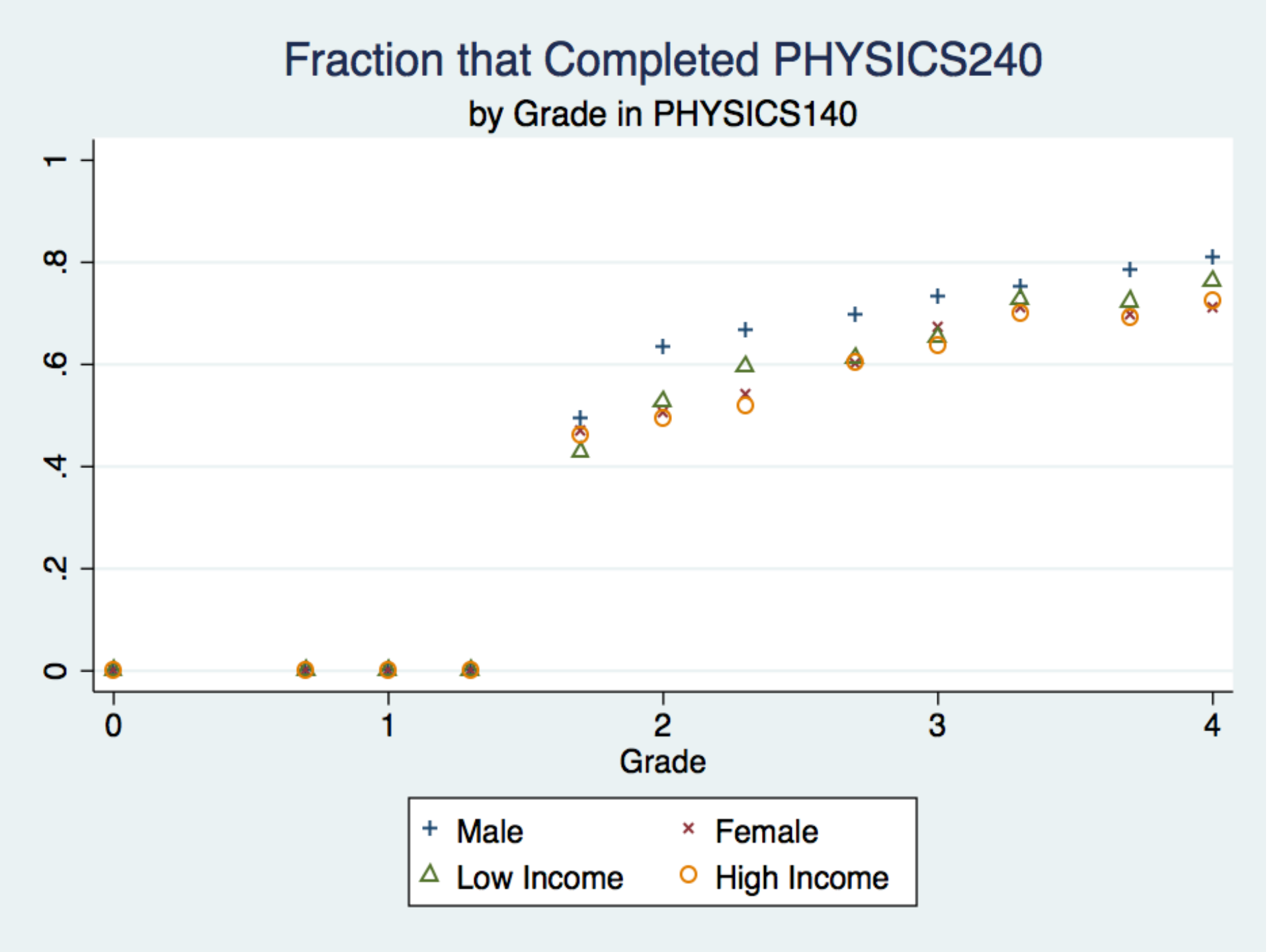

Avg. grades in history
HISTORY252
HISTORY206
HISTORY204
HISTORY320
HISTORY476
HISTORY397
HISTORY396
HISTORY196
HISTORY197
HISTORY195
HISTORY241
HISTORY461
HISTORY110
HISTORY260
HISTORY363
HISTORY329
HISTORY132
HISTORY268
HISTORY331
HISTORY360
HISTORY359
HISTORY210
HISTORY111
HISTORY266
Average grade in the course
Average year of students
4.0
3.5
3.0
2.5
2.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Female
Male
PHYSICS106
PHYSICS161
PHYSICS261
PHYSICS290
PHYSICS481
PHYSICS236
PHYSICS411
PHYSICS420
PHYSICS260
PHYSICS160
PHYSICS341
PHYSICS288
PHYSICS390
PHYSICS441
PHYSICS135
PHYSICS405
PHYSICS453
PHYSICS340
PHYSICS235
PHYSICS401
PHYSICS140
PHYSICS240
Avg. grades in physics by gender
Average grade in the course
Average year of students
4.0
3.5
3.0
2.5
2.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Female
Male
HISTORY252
HISTORY206
HISTORY476
HISTORY204
HISTORY196
HISTORY397
HISTORY461
HISTORY391
HISTORY110
HISTORY329
HISTORY359
HISTORY331
HISTORY360
HISTORY132
HISTORY210
HISTORY266
Avg. grades in history by gender
Average grade in the course
Average year of students
4.0
3.5
3.0
2.5
2.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0


160: Moral Principles (658)
180: Intro to Logic (3861)
181: Philo. Issues (3302)
196: FY seminars (1485)
202: Intro to Phil. (4557)
230: Buddhism (704)
232: Prob. in Phil. (7283)
303: Symbolic Logic (1751)
345: Language & Mind (893)
355: Moral Problems (3894)
356: Bioethics (1030)
359: Law and Philosophy (3473)
366: Political Philosophy (880)
388: History – Ancient (973)
389: History – 17th & 18th (1150)
PHIL356
PHIL196
PHIL232
PHIL160
PHIL355
PHIL181
PHIL359
PHIL230
PHIL202
PHIL345
PHIL180
PHIL388
National fraction of Philosophy Bachelors Degrees…
Gender representation in Philosophy
Fraction of female enrollment
Average year of students
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Grades in PHYSICS140
Frequency
0
1000
2000
3000
0
1
2
3
4
Grade
Everyone
Completed PHYSICS240


Fraction that Completed PHYSICS240
by Grade in PHYSICS140
0
.2
.4
.6
.8
1
0
1
2
3
4
Grade
Male
Female
Low Income
High Income

Good data supports grant-seeking

- Carl Weiman's NSF WIDER grants: introductory teaching should be evidence-based and assessed
- Grant application for this supported by strong LA data about current state
- Received $2M, 3 year grant to support reform efforts in Physics, Chem, Bio, and Math starting in Jan. 2014
- Departmental reform teams supported by an interdisciplinary **REBUILD** committee:

  Researching **E**vidence **B**ased **U**ndergraduate **I**nstructional and **L**earning **D**evelopments
- A rare opportunity to rethink these key courses – our chance to make a generational change in how we do this

Interactions with the larger community

- Society for Learning Analytics Research
  - UM a founding member

- International meeting

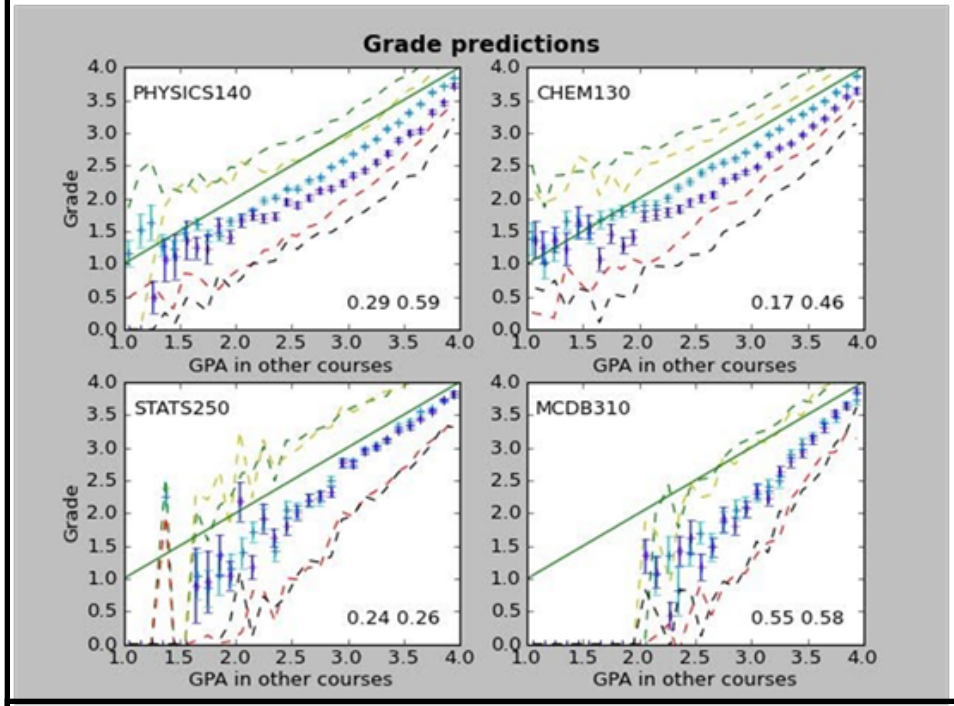
- Our own data would be greatly enhanced by combination with other institutions
- Exploring parallel analyses and data sharing across the CIC (Big Ten & U Chicago)
- Meeting held in July – slow but steady progress

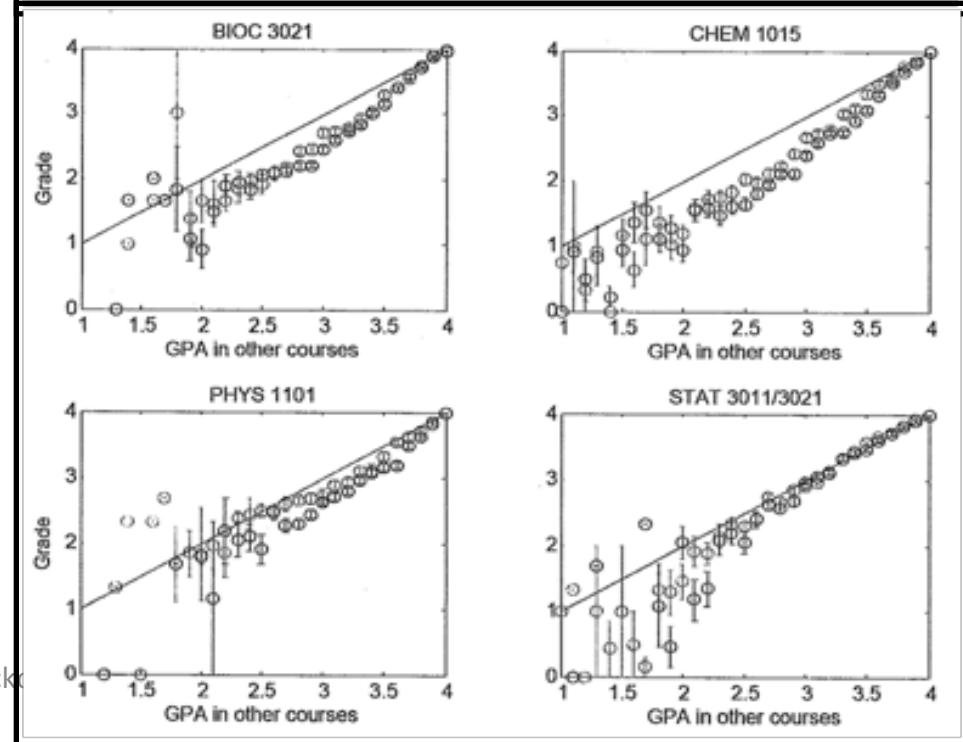
Attempt at parallel analysis between Michigan and Minnesota: Intro Physics, Chem, Stats, and MCDB compared at the two…

Intriguing, but reveals the challenges of parallel analysis as well.

	Minnesota		Michigan	
	M	F	M	F
Biochemistry	.30	.39	.55	.58
Chemistry	.38	.50	.17	.46
Physics	.16	.32	.29	.59
Statistics	.07	.08	.24	.26

Grade penalties by gender





MOOCs etc.

- Data from Michigan Coursera classes now flowing to Stephanie Teasley's USE lab
- New postdoc there working on the analysis, in parallel with teams at other Coursera institutions
- They'll be reporting on this at a SLAM talk later this semester

What's coming for LATF

- Report with suggestions for changes in the teaching evaluation process (next SLAM talk)
- Design requirements for tools which will expose data to students, faculty, and administrators
- We will be looking for suggestions about what these tools ought to do
- New SLAM series this year – schedule online
- New LA Fellows group starting Jan. 2014, more focused: announced 10/15, appl. due 11/15

Student Learning and Analytics at Michigan (SLAM)

Sponsored by the Provost's Task Force on Learning Analytics, Student Learning and Analytics at Michigan (SLAM) is a speaker series. Presenters will focus on the analysis and use of data about students, courses and academic programs-- for the purposes of improving teaching and learning.

Click on individual topics below to register for upcoming events in the SLAM series. To view events from 2011-2012, click here.

Academic Year

SLAM 2012-2013
SLAM 2013-2014

Apply

SLAM 2013-2014

Date	Presenter(s)	Title	Materials
9/13	Tim McKay, U-M Physics and Chair of the Learning Analytics Task Force	Learning Analytics at U-M: 2013-15	
9/27	Mika LaVaque-Manty & David Cottrell, U-M Political Science	Evaluation of Teaching at U-M	
10/4	Dan Russell, Google	Teaching 150K+ Students at a Time: The PowerSearchingWithGoogle.com Story	
10/11	Steve Lonn, Stephanie Teasley & Eric Koo, U-M USE Lab	Massive Michigan: A First Look at the Analytics of UM's 2012-13 MOOC Courses	
10/25	Virginia Kuhn, University of Southern California	Video Analytics: From Keywords to Keyframes	
11/1	Christine Modey, Sweetland Center for Writing, U-M Robin Fowler, Technical Communications, U-M	Online Learning Resources in the Humanities and Engineering: Making and Measuring	
11/15	Dan Hickey, Indiana University	Digital Badges	