

Undergraduate Town Hall 9/19/17 – Curriculum Revision

**Section 1: Mike Richman presents curriculum revision. Full powerpoint with curric revision is available on separate page.**

**Mike Richman** – undergrad curriculum revision

Cycle started in 2013 to review AMS curriculum requirements

- Have made one revision a year and a half ago, and minor ones since then
- Haven't evaluated curriculum in over 10 years
  - Taking feedback from employers, AMS
  - Considering that world is changing and curric. Needs updating
  - Reduced required course load to 121 hours for more flexibility
- Goals of SOM
  - Graduate best students
  - Best students – make employable

Professional guidance – AMS Educational Goals

Required skills and competencies:

- Math, physics, chem, scientific computing
- Employers want students who can use codes to solve problems
- Need to reinforce ideas more throughout curriculum (to build skills)
- Oral and written communication skills.
- Beyond the required classes... (we have those!)
  - Taking advantage of faculty expertise should be easily available
- Grad school preparation
  - Additional classes needed for grad school prep (ODE, PDE, Lin al., etc.)
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GOALS of curric revision committee:

- Review curriculum
  - Keeping flexibility to a max
  - Remove classes not needed
- Maintain OU's top reputation
- Prepare students for employment (survey companies)
- Three goals:
  - Better coordination of classes to ensure skills are retained
  - Scientific writing and communication skills included in curric.
  - Same with computational skills

Discussion of survey results on skill levels (one for writing, one for computational skills)

- Take results and map skills into a curriculum
- Computing skills survey also sent out

Committee work over the past year:

- Requested updated knowledge expectations for classes
- Incorporated writing and computational skills into specific classes
- Timing – earliest 2018/19 year due to approval procedures, seeking feedback, grandfathering issues, etc.
- Faculty will not see final proposal until after student feedback

## **Section 2: Course changes and Student Feedback**

**Refer to curriculum revision powerpoint for full course schedules proposed for each semester**

### **Advised curriculum CHANGES:**

**1<sup>st</sup> year fall:** METR 1113 in place of 1111, more algebra based, more background than 1111 total 15 credit hours

**1<sup>st</sup> year spring:** METR 1313 or CS 1323 since 1313 has been deemed “useless” by students. CS 1323 is an option to take the place of METR 1313 but METR 1313 is still an option. This changes getting a CS minor – CS 1323 is acceptable to assist with getting the minor in CS ( fewer additional classes needed for the minor). \*\*Petition College to drop the CS requirement and make it a School requirement

Student mentioned he did not feel prepared for coding assignments given after METR 1313, suggested a python intro in the course and step by step assignments through codes. The student mentioned the next class requiring codes was INTRO 1 lab. Another student mentioned the assignments in the class were just provided code and asking for minor changes/debugging to complete the assignment. 3<sup>rd</sup> student mentioned that 1313 class doesn't cover classes and objects which she mentions are important coding tools (she comes from AP background credit for computer science and CS minor but did not take the class). Student mentions that having this class in this semester is a good idea for the sake of using these skills during any summer internships that summer.

**2<sup>nd</sup> year fall:** New course METR 2014 Atmospheric Circulations (includes recitation) – meant to teach a lot of same concepts from intro courses. No more Physics Lab or intro sequence (2013, 2023).

**2<sup>nd</sup> year spring:** METR 2213 thermo – now offered as a second year class with topics from intro 2, instead of a third year class.

**3<sup>rd</sup> year fall:** METR 3313 Statistical metr. (now a junior level class), but can still take Math 4753 as an alternative. Taking the METR 3313 Stats class will mean one other math course will be required for the math minor (this class does not count towards math minor). New course in Atmos. chem. (METR 3513) proposed. Student concerned that this is a heavy semester (several very time intensive, difficult classes together). Student suggested putting measurements as a 2<sup>nd</sup> year class and leaving thermo as a 3<sup>rd</sup> year class (this is because measurements is very work-

heavy but the concepts are not hard and could be handled by a sophomore). Students are VERY concerned about this heavy class schedule, trying to balance it with a job, students will be at disadvantage. Homeyer and Richman seemed to agree that this is an issue that needs to be looked in to, talked about need-based awards for students who need financial aid to assist with time management when it comes to working on top of school. Student suggested integrating basic descriptive stats into freshman coding class to assist with the chance to move junior stats class into different semester.

**3<sup>rd</sup> year spring:** METR 3324 Communications and Research Methods (includes advanced programming) – new class – offered both semesters. Motivations for this course are to start getting students thinking about their capstone. Students suggest switching something from this easy spring and previous difficult fall to balance the load.

**4<sup>th</sup> year fall:** Capstone is a 3 hr course now, only one semester instead of two. Thought is that METR 3324 would be taking the place of the first semester of Capstone, in a sense... to get people thinking about projects, etc. One student does not think one semester for capstone is enough for a sufficient project. Another student says this method puts students who are studying abroad and don't take METR 3324 at a disadvantage for starting their capstone. Synoptic METR changed from a 4 hr course to 3 hr. Students do not like taking the hour away from synoptic because that requires cutting some material out of the class. This seems to be agreed upon by Richman and Cameron without objection. Student suggests an option of using 1<sup>st</sup> semester of Junior year to decide on a group and topic, and then using the METR 3324 as an opportunity to work with your group on basics (even if they are studying abroad, they have their group set up and can work remotely with them). Student suggests final project for METR 3324 to be project proposal for capstone in order to be fully prepared to jump into capstone in this fall semester.

**4<sup>th</sup> year spring:** New METR 4513 Climate and General Circulation (aimed at meeting AMS course requirement for climate) as opposed to the second semester of capstone. Radiation is not so much involved in this class – radiation is with the radiation and remote sensing class several semesters before.