18.705 Fall 2014: Commutative Algebra

September 18, 2014

Basic information

Course web page: http://web.mit.edu/18.705/www/index.html

Classroom: E17–122

Time: Tuesday & Thursday 13:00–14:30

Instructor: **Yifeng Liu**

- Office: E18–476
- Office hour: Tuesday 14:30–16:30
- Email: liuyf@math.mit.edu

TA: **Vinoth Nandakumar**

- Office: E18–401h (cubical)
- Office hour: Thursday 16:00–17:00
- Email: vinothn@math.mit.edu

Syllabus: See Course web page

Prerequisites: 18.701, 18.702 or their equivalent

Text (Lecture Notes): **Altman, A.; Kleiman, S.** A Term of Commutative Algebra, **available here**

References:

1. **Atiyah, M. F.; Macdonald, I. G.** Introduction to commutative algebra. *Addison-Wesley* 1969

2. **Eisenbud, D.** Commutative Algebra: with a View Toward Algebraic Geometry, Graduate Text in Mathematics 150. *Springer-Verlag* 1994

3. **Matsumura, H.** Commutative ring theory, Cambridge Studies in Advanced Mathematics, 8. *Cambridge University Press* 1986

4. **Reid, M.** Undergraduate commutative algebra, London Mathematical Society Student Texts, 29. *Cambridge University Press* 1995

Grading policy

Composition: Homework 40% + Midterm 20% + Final 40%

Midterm: will be taken in class on **Oct 23, 2014**

Final: 3-hour exam, on **Dec 16, 2014, 9:00–12:00**, at **E17–122**

Homework: See Course web page for assignments with due dates.

- There will be **10** homework sets, each contributing 4% to the course total.

- Every homework must be submitted to TA directly, either in a physical form or in an electronic form (PDF only).

- Every homework will always be due on **Monday, by 12:00**; **late homework will absolutely not be accepted**.

- If you expect to miss a homework and have an official excuse from Sˆ3, then you need to notify the instructor of such a case via email **before** the due time, and the official email from Sˆ3 must be sent to the instructor within **24 hours** after the due time. As a result, the 4% of this homework will be added to your Final. Every student has **one** chance to miss homework with no reason, and the 4% of this homework will be added to your Final. In all other cases, you will get zero credit for the missing homework.

- (Copied from last year) The notes also include solutions to the unassigned problems. Do try to solve each of them too, and do so before reading its solution, in order to better appreciate the issue. And do read the solution even if you think you already know it, just to make sure. Further, some problems have alternative solutions, which may enlighten you. The problems are exercises for your mathematical health. They provide a means for you to check, solidify, and expand your understanding of the material. They are not meant to be difficult, or tricky, or involved. Rarely do they introduce any new methods of proof. If you find that you are stuck on any problem, then review the relevant material. If you remain stuck, then discuss the problem with someone or look up its solution. You are on your honor to think through each problem on your own, and to write it up in your own words, unaided by other people, solutions, or notes. Remember: in the end, what counts is that you can solve the problem correctly and that you can explain the solution clearly.