

Math 21A, Harvard University. Fall 2016. TuTh 10-11.30am, Science Center 110.

Instructor: George Melvin

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Office: Science Center 209h

Office Hours: M 9-10am, Tu 5-6pm, W 10-11am. All office hours will be held in SC209.

Class Webpage: <http://math.harvard.edu/~gmelvin/teaching.html>

Worksheets, handouts, and any other information presented during class can be found here.

Course Assistant: Wentong Zhang (wentongzhang@college.harvard.edu)

Weekly Problem Session:

Homework: Homework is collected at the beginning of every class. Homework must be submitted in hardcopy by 10.20am. **Late homework will not be accepted.** If you are unable to submit homework on time, due to legitimate circumstances, then let me know (via email) ASAP.

You are free to discuss solutions to homework sets with your peers; in fact, this is strongly encouraged! However, you must write up your homework independently. If you have worked with someone else then write '*I worked with I. Newton, C.F. Gauss,...*' on your submission. You should not make use of any online forums (eg math.stackexchange.com); if you have questions then there are many resources available to you (see *Resources* below). You are reminded of the Honor Code pertaining to your work.

Homework should be legible and written in complete English sentences.

What you should expect in class: Class will start promptly at 10.07am. Class will consist of a mixture of lecture, discussion, and problem-solving. The aim is to provide you with the tools and confidence to attack your homework sets. We will frequently skim or omit basic concepts that you can read about on your own (see *Resources* below), or discuss with your peers outside of class. Familiarise yourself, ahead of time, with topics in the syllabus by glancing through one or more of the resources.

How to succeed: This class will be fast-paced and it is **extremely important to keep up with the material**. You should attend section and expect to be spending considerable time outside of class thinking about what we have discussed; it would not be uncommon to spend 10-15hrs per week on this course at various stages. If you feel like you are struggling then come and see me as soon as possible; it is my job to help. It is **extremely important to ask questions**, no matter how silly you might think they are. I guarantee that others in the class will have similar silly questions. You are not expected to know everything straight away, but you are expected to be given the opportunity to learn.

Here are some tips:

- *form study groups and learn from each other,*
- *ask lots of questions - to your peers, to the instructors,*
- *get started on your homework as soon as possible.*

Community Rules: You should feel comfortable in class, both with your peers and instructors. In order to maintain an encouraging and comfortable environment for all, please keep the following in mind:

1. *Be inclusive* - if someone is struggling, help them. Learning is not a competition! Explaining mathematical concepts to others is the best way to solidify your understanding.
2. *Don't trivialise difficulties* - refrain from saying '*Oh, that's easy*'.
3. *No interrupting.*

Resources: The following references should be considered your immediate points of contact if you have questions:

- *Math 21A instructors, CAs* - you are free attend all instructors' office hours.
- *Math Question Center* - Sun-Thu 8.30-10.30pm, SC309. Ask questions, find answers!
- *Oliver Knill's Course Webpage* - <http://sites.fas.harvard.edu/~math21a/>

The following resources are a great supplement to the material we discuss in class:

- *MIT OpenCourseWare* - video of Prof. Auroux's Fall '07 Multivariable Calculus course.
- *UC Berkeley* - Prof. E. Frenkel's Fall '09 Multivariable Calculus course is available on youtube.com.
- *Online notes* - recommended links are available at the Class Webpage.

There are thousands of multivariable calculus resources available online. I recommend finding notes or a textbook that you like and maintaining a 'vow of celibacy' to them: the material we cover is standard fare, and jumping around between resources is more of a hinderance than an aid to your learning experience.

Finally: Remember that **maths is hard** so don't feel 'stupid', we all have to start somewhere. If you put in the effort then I guarantee that you will be rewarded. 😊