

**Question 20 - What did you like best about this course?**

Professor Devlin's attitude and mindset. He deeply understands the importance of, and need to develop, an exploratory attitude, such as Darwin had when he was naturalist on the Beagle. He also understands, as does Paul Lockhart, the role of curiosity and the danger of "learning to the test" in developing the kind of skills most important for encounters with the messy and unknown domains that face the post-classroom practitioner.

**Question 21: What single thing would you most want to change about this course?**

Structure, specifically search and forum structures: the forum structure was both rigid and lacking in intermediate structure, e.g., the threads were a chaotic mess, while search was incredibly primitive, lacking any structure at all. The result was a hit-or-miss chaos. What is needed is a combination of fully-faceted search plus an evolving forum structure with multiple-points-of-view.

**Faceted search**

Scope specification -

- whole website
- all forums
- specific forum
- thread titles
- thread contents
- tag cloud
- transcriptions of the lectures
- people, by name and community TA id
- Booleans
  - \* NOT this
  - \* this OR that NOT BOTH
  - \* this OR that POSSIBLY BOTH
  - \* string
  - \* this AND this
- regular expressions

Related topics -

- similarity
  - \* sounds like
  - \* looks like
- see also semantic relationships

Searches should be able to be saved and then used for search refinements. The same automatic visualization tools that should illustrate the evolving forum graph structure could be used to visualize the results of searches and sub-searches. Structure/relationship visualization is a key tool for gaining deep understanding.

**Forums Structure**

1. It is currently impossible to track all threads. Need to automatically assign author-editable tags to entries, and from that develop an emergent substructure among the threads. Threads should be sortable by tag, creation and modification date, author, and title,

2. The current structure is like a rigid class hierarchy and needs cross-cutting views. The structure needs to be a graph structure to reflect the emerging multiple POVs and LODs.

3. The community TAs need a tool for effectively traversing the forums and adding intermediate structure as needed beyond the automatic evolution suggested in Point 1.
4. There needs to be a topics forum that is independent of lecture and assignment. The topics forum could have automatic links into relevant lectures and other forum threads. Obviously, the topics forum needs to evolve deep structure as the course proceeds.
5. An evolving, linked visualization of the interacting threads graph would be extremely valuable. The NSDL Science Literacy Maps (<http://strandmaps.nsdsl.org/>) provide an illustration of one possibility. Strandmaps would be a great addition to the courses.

**Question 22: What is the most important thing you learned in this course?**

Patience, persistence, and tolerance of anxiety when I don't understand a concept combined with the courage to ask what seem to be dumb questions of the forum. The latter is one of the great values of a knowledgeable and engaged community forum. The community TAs add immense balance and confidence to the process.

**Question 23: When were you most challenged in this course? How did you confront that challenge?**

Time!!!! Need more flexibility wrt deadlines. The advantage of a course you take for its own sake should be a more asynchronous approach to deadlines. The problem becomes much more serious when you consider students from all over the world who are fitting the course into already full lives, and who may - for many reasons - not have adequate access to the Internet. I confronted that challenge by ignoring the deadlines. If deadlines are ignored then the issue is mitigated by the fact that the materials and forums will continue to be online for at least until the next version of the course. This is very important.

**Question 25: Let us know if there is anything else you want to share.**

**Motivation for taking the course:**

My initial attraction to Coursera courses was that they were: (1) given by professors and schools I respected, (2) on topics I was interested in, (3) interactive, (4) free, (5) and standalone - they did not involve formal institutional structures and grades. My specific attraction to Introduction to Mathematical Thinking was both Prof. Devlin, whom I deeply admire, and the topic, mathematical thinking, as distinct from a specific course in mathematics.

To provide some context, the single challenge to this experience is the history and philosophy of the enlightenment course I took as an undergraduate in 1960. That course introduced me to the whole range of philosophical thought within both the context of Continental and English history at the time and the roots going back to Greek thought. It also taught me about the multiple interacting dimensions - people, economics, social structure, intellectual questions, logical skills, context - that comprise critical thinking, and in the process introduced me to the single most valuable tool in my experience - Mortimer Adler's "How to Read a Book". "Introduction to Mathematical Thinking", while very different in accidentals of domain and skill set, is a true companion, one I wish that I'd had when I was in college as an undergraduate.

Other comments about motivation:

Completion, especially completion within the timeframe, may NOT be the goal. Goals may include, among others: exploring a domain and accessing its mind set, gaining insight/inspiration, plus a

roadmap, building a tapestry, fitting concepts into the fabric of one's life, building community, gathering materials for later.

I very, very much like the idea of NO course credit, of taking a course for its own sake combined with the possibilities for interaction, for being able to get questions answered.

**Peer evaluation:**

I can't comment on peer evaluation since I didn't participate in that this time; in the next session, which I hope is twice as long, I will.

**Cost issues:**

Cost is definitely an issue, as is open placement, i.e., not being part of a formal undergraduate/graduate structure. I don't want grades or credit; learning for its own sake and interaction are very important. This online universe presents a different environment. I never bothered to investigate either the Open University or Phoenix University once I found out that the courses were part of a traditional structure and cost money. OCW and Khan were worthy predecessors in that both are persistent - available on an as-needed basis - and free.

What would also be incredibly helpful for in depth asynchronous study would be a zip file of all the forums whose contents can then be opened locally in a browser. Unlike some Coursera courses, the forums in this course are rich sources of ideas and information, and are a valuable complement to the videos, problem sets, and assignments. I tried downloading various threads but gave up since I didn't even have the time to DO the course.

While I would not pay in advance for taking a Coursera course, when it proves as valuable as this one has, with value that needs to be savored and worked with over time, I would be willing to purchase a DVD set containing all the course materials, including videos, website, problem sets assignments and exams and their annotated solution sets, and - very important - the full forum set.

**Wish list for follow-up:**

Course -

I would very much love to take "Introduction to Abstract Algebra", taught by Prof. Devlin, as a follow-up to this course. I want to learn to ground, extend, and work with abstractions and their relationships within the framework Prof. Devlin established in "Introduction to Mathematical Thinking". Crucial to the experience would also be access to a rich community of fellow explorers such as those I encountered in this course. Many of the forum members and community TAs were knowledgeable, compassionate, and capable of communicating understanding to people with a wide range of mindsets, experiences, skills, and expectations, a resource unique to this very special medium.

Community access -

The community that has evolved during the duration of this course is richly talented and deserves to persist in some fashion. I'm no expert in this area, but would like to see the forums continue across courses within the domain of mathematical thinking. Perhaps, MAA might consider sponsoring it as part of the educational resources it provides.