A Recipe for Learning [a work in progress]

Ingredients: High-quality curated learning content

- Short videos by engaged speakers in the subject area
- Short videos by the instructor, explaining key concepts
- Relevant and/or current articles of interest for the subject
- Interactive learning objects (where appropriate)

Cook Time: There should be a schedule laying out the whole experience, but the course shell shouldn't be built around it.

Directions: Crucial Elements for Teaching Online

- **Getting Started Guide**
- **Learning Feedback –** An online homework system or regular quizzes/learning checks built in to the LMS gives immediate feedback to students and provides frequent deadlines to keep students on track to completion.
- **Content Sharing by Instructor –** Screencasting software gives you the ability to record the screen while you talk through concepts and examples (e.g. Camtasia).
  Note: A Tablet PC or alternative (digital pen, peripheral tablet) makes life much much easier for the instructor in some classes. It also helps to find amazing and engaging content out there on the web to incorporate! See *Teaching with Tech* article: http://bit.ly/IjcMmA
- **Student Sharing –** Using Jing (or a similar program) students can easily share math no matter how they did it (e.g. with a camera, an equation editor, handwritten in Journal)
- **Q&A Space –** Q&A discussion boards for student-prompted questions can be a valuable space to do things like correct notational and concept errors that may not be assessed in online homework. Synchronous meetings or social spaces can also function as a Q&A space.
- **Social Space –** space for natural human interaction to form a community of learners (Twitter, Facebook, "Check-in" Discussion Board, etc.)
- **Human Coach** – students need to feel a connection to YOU (e.g. webcam video pep talks, coaching, synchronous meetings)

Taste Test: How did the learning turn out?

There need to be major assessments (exams, projects, research papers) that force a "deep dive" into learning. These need to have deadlines and consequences if they are not taken seriously. Why? Because we're human beings and suffer from optimism bias.

Screencasting (create lessons by recording your screen)

- Jing: http://www.techsmith.com/jing.html
- Screencast: http://www.screencast.com
- Camtasia Studio: http://www.techsmith.com/camtasia.html
- SnagIt 11 (the new version of SnagIt does quick-produce screencasting like Jing)
- ScreenChomp (for iPad, whiteboard, markers, and highlighters)

Scheduling, Appointments, Information Collecting

- Doodle: http://doodle.com/ (for finding a compatible meeting time)
- TungleMe: http://tungle.me (for allowing students to make individual appointments)
- Google Forms: http://www.google.com/google-d-s/forms/ (collect info from students)

Synchronous Communication with Students

- Google+ Hangout: http://www.google.com/+/learnmore/hangouts (up to 10 webcams + screenshare + Google Doc collaboration + simultaneous YouTube video watching)
- WizIQ: http://www.wiziq.com/ (may have a cost now)
- Vyew: http://vyew.com/s/ (can have one room for the class that stays open all semester)
- Google Docs: https://docs.google.com/ (there IS an equation editor in Google Docs now)
- Skype: http://www.skype.com (free version limited to two webcams)
- Or just use Instructure Canvas: http://canvas.instructure.com because then you don't need anything else!

Asynchronous Communication

- Discussion Boards within LMS (incorporate Jing and cell phone cameras where necessary)
- Facebook Groups: http://www.facebook.com/about/groups (can be private or public)
- Facebook Fanpage: http://www.facebook.com/pages/create.php (open to public)
- Twitter with a class hashtag (open to public, allows students to interact with professionals in their field, other math students, other math professors)
- Piazza (http://piazza.com) is a new discussion board system that you may want to check out for technical fields especially. You can indicate that a student answer is "verified by the instructor" and students can work together on the same answer (instead of multiple threads)

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