

Creating Pre-class Content for the Flipped Classroom: Generating Video Walkthroughs

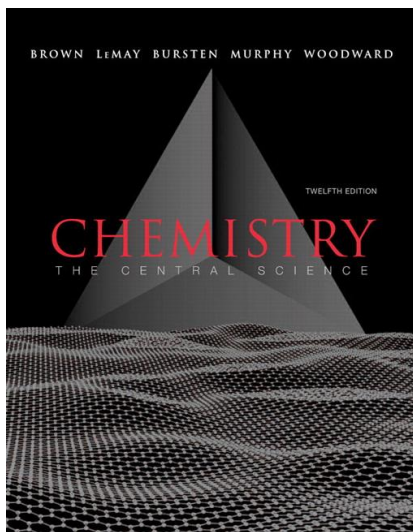
Thomas J. Mullen

Department of Chemistry, University of North Florida, Jacksonville, FL 32224, USA



UNF CIRT Flipping the Classroom Series, February 14, 2014, Jacksonville, Fl

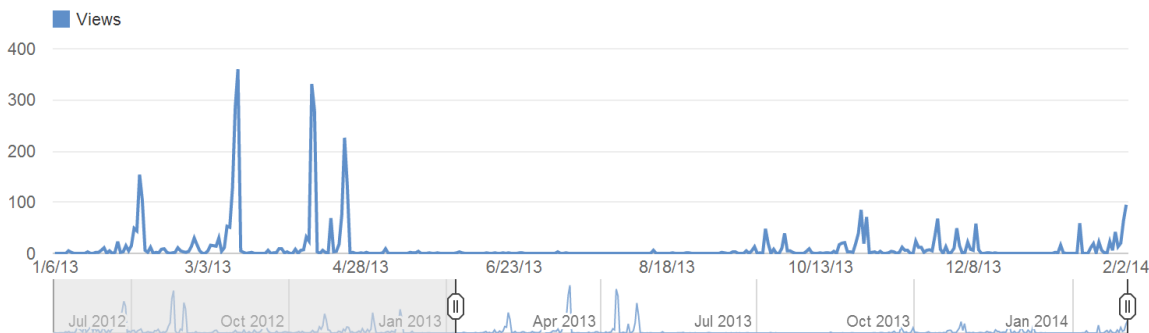
Motivation and Technology



Tools of Creation



Analytics, Results, and Feedback



Challenges Associated Related to General Chemistry I

General Chemistry I is viewed as "weed out" or "gatekeeper and/or gateway" course.

General Chemistry I has the 4th highest nonsuccess rates at UNF (43%) according to the Academic Affairs 2010-2011 Annual Report.

General Chemistry I is a prerequisite for large number of majors across the UNF campus including the natural sciences, nursing, nutrition, engineering, etc.

Most students who enroll in General Chemistry I are in their first semester at UNF and are learning cope with a range responsibilities including living in a dorm, having to study, working, etc.

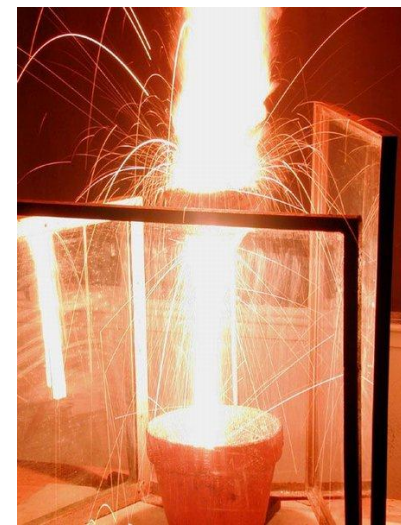
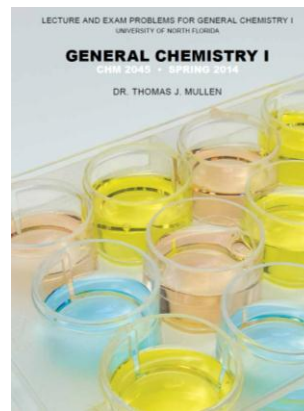
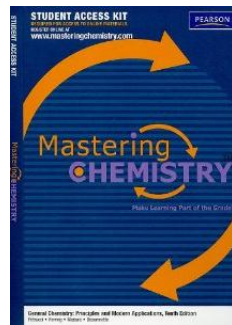
As an instructor I need to account for these factors by providing numerous and personalized opportunities while maintaining a clear and straightforward set of expectations and rigor.

Personalized and Effective Educational Experiences

My teaching philosophy embraces opportunities for student success while asserting and maintaining clear, fair, and rigorous expectations.

I embrace and cultivate technology as a means to facilitate custom and individualized learning opportunities for all of my undergraduate students including:

- multifaceted and adaptive lectures via the CPS clicker technology
- personalized and group demonstrations of chemical phenomena
- online and flexible homework assignments
- video tutorials for coursework and examinations
- a published lecture notes packet (containing useful tables, practice problems, and previous examinations)
- a personalized grading system
- study-skill activities
- statistics for red parscore forms



Good artists copy but great artists steal!

One of the Best Example of a Flipped Classroom

Dr. Mathew Stoltzfus (Dr. Fus) - OSU Chemistry

<http://drfus.com/>

Featured on ESPN:

<http://www.youtube.com/watch?v=hKsrkRNgVQk>

Sal Khan's Khan Academy

<https://www.khanacademy.org/>

Colleagues at UNF

Bryan Knuckley in the Department of Chemistry

DL course of General Chemistry I

Video Tutorials for Coursework and Examinations

Video provide learning opportunities outside of the classroom.

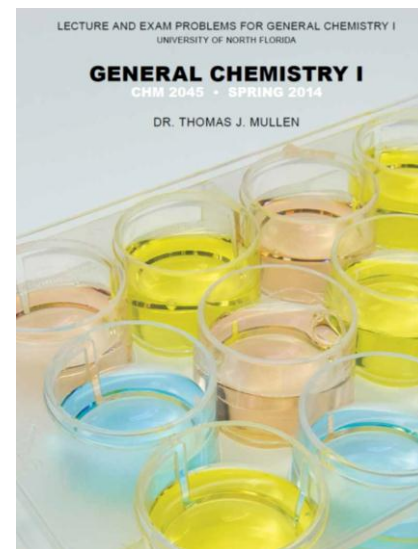
I have developed a YouTube Channel associated with my General Chemistry I course: www.youtube.com/profmullen

Walkthroughs for lecture worksheets, midterm exams from previous semesters, and midterm exams from the current semester.

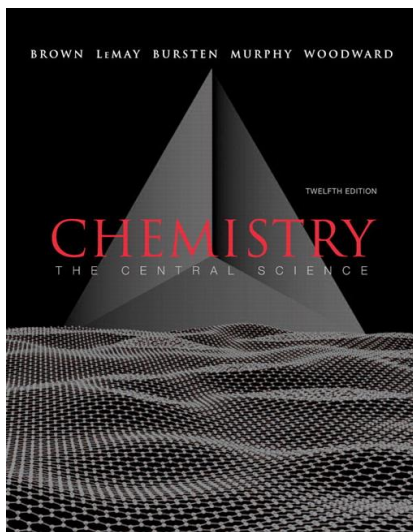
I publish a "Lecture and Exam Problem" booklet where students can find these lecture worksheets and midterm exams from previous semester.

My "lecture worksheets" is very similar to a flipped classroom in that we do not go over the problems in lecture, and students must go to my YouTube Channel for the answers.

One of my first questions in office hours is did you watch the YouTube video for the associated question.



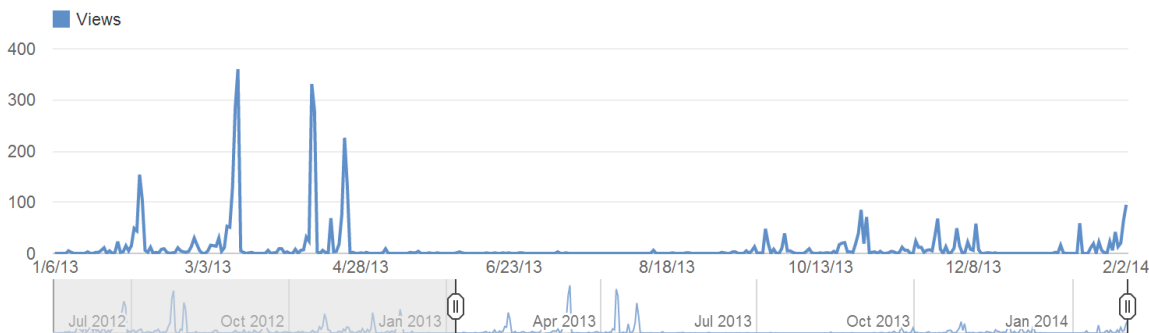
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The iPad is Natural Fit for Generating Walkthrough Videos



A large number of applications exist to meet your specific needs.

Doodlecast Pro (CIRT Newsletter)

Educreations

Splashtop

Doceri

Need an application that can record voice, draw, and import pictures.

My preference is to have the video file save to your iPad (not internet).

Purchase a good stylus to make text legible and easier to write.

How to Increase the Production Quality of Your Videos

Use high-resolution images for your questions by converting word document to pdf for screen capture. This eliminates spelling and grammar indicators.

OS X - command-shift-4

Windows - alt-print screen

Third party solutions exist

Use video editing software (iMovie, premier, final cut, etc.) to remove hisses, add title page, add music, add transitions, and stich together multiple videos.

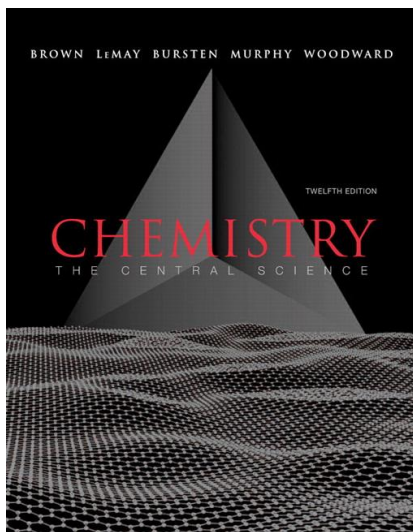
Upload to YouTube prior to release date and use the "Private" feature to prevent students from seeing videos until you want them to see the video.

Make a separate YouTube channel dedicated to your teaching (i.e. - Do not use your personal YouTube channel)

Utilize playlists to organize various types of content (exams, worksheets, etc.).

Use Dropbox to transfer between your iPad and computer.

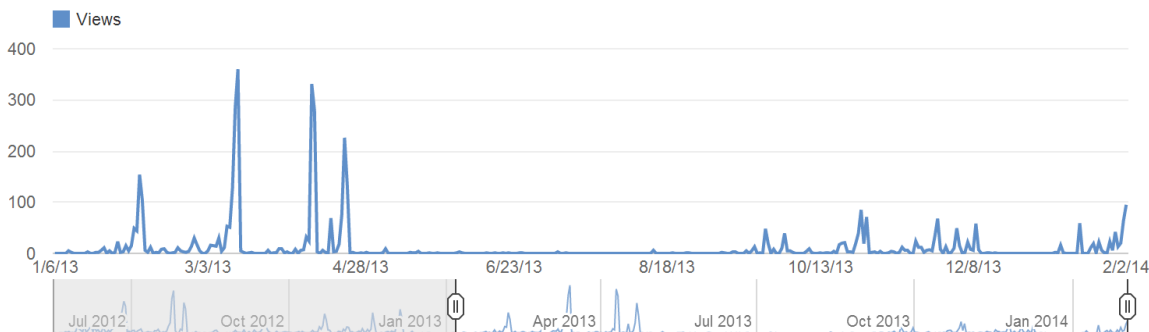
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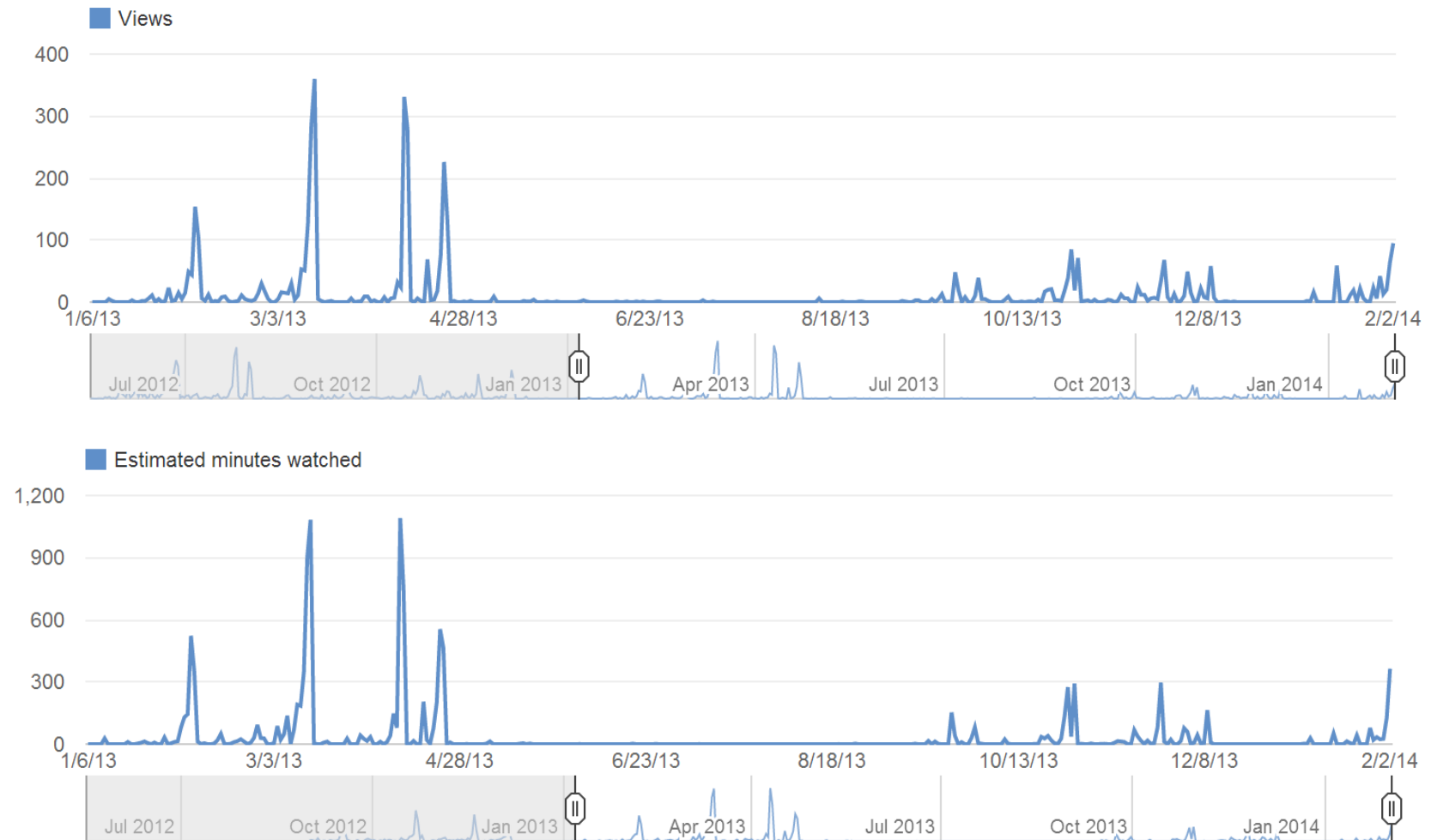
Analytics, Results, and Feedback



YouTube Analytics Gives Insights into Study Habits

By analyzing YouTube Analytics I can suggest adjustments to my students study habits of my students and compare to previous semesters.

Can you tell the dates of my midterm exams and finals?



YouTube Analytics: Individual Videos Statistics

Evaluate by video and date and sort by views, minutes watched, and average view duration to find trends to discuss in lecture.

Video	Views ↓	Estimated minutes watched	Average view duration
Exam 1, Summer 2012, Part 1	193 (4.7%)	545 (4.6%)	2:49
Exam 2, Summer 2012, Part 2	100 (2.4%)	448 (3.8%)	4:28
Exam 1, Summer 2012, Part 3	93 (2.2%)	319 (2.7%)	3:25
Exam 2, Summer 2012, Part 1	91 (2.2%)	320 (2.7%)	3:30
Exam 1, Summer 2012, Part 2	87 (2.1%)	323 (2.7%)	3:43
Exam Practice Worksheet 1, Problem 1	79 (1.9%)	123 (1.0%)	1:33
Exam 2, Summer 2012, Part 3	77 (1.9%)	295 (2.5%)	3:50
Exam 1, Spring 2013, Part 1	76 (1.8%)	197 (1.7%)	2:35
Exam 3, Fall 2012, Part 1	72 (1.7%)	375 (3.2%)	5:12
Exam Practice Worksheet 4, Problem 4	69 (1.7%)	129 (1.1%)	1:52
Exam Practice Worksheet 1, Problem 3	67 (1.6%)	84 (0.7%)	1:15
Exam 1, Spring 2013, Part 2	66 (1.6%)	375 (3.2%)	5:40
Exam 3, Spring 2013, Part 1	65 (1.6%)	214 (1.8%)	3:17
Exam 2, Spring 2013, Part 1	64 (1.5%)	321 (2.7%)	5:00
Exam Practice Worksheet 4, Problem 3	63 (1.5%)	145 (1.2%)	2:17
Exam 2, Summer 2012, Part 4	61 (1.5%)	229 (1.9%)	3:45
Exam 3, Summer 2012, Part 3	61 (1.5%)	154 (1.3%)	2:31
Exam Practice Worksheet 4, Problem 1	59 (1.4%)	235 (2.0%)	3:58
Exam Practice Worksheet 5, Problem 4	59 (1.4%)	53 (0.4%)	0:53
Exam Practice Worksheet 1, Problem 4	59 (1.4%)	90 (0.8%)	1:31
Exam 3, Fall 2012, Part 2	59 (1.4%)	217 (1.8%)	3:40
Exam 1, Summer 2012, Part 4	58 (1.4%)	299 (2.5%)	5:09
Exam 3, Fall 2012, Part 3	56 (1.4%)	289 (2.4%)	5:09
Exam Practice Worksheet 2, Problem 6	55 (1.3%)	49 (0.4%)	0:53
Exam Practice Worksheet 2, Problem 1	53 (1.3%)	94 (0.8%)	1:46

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Date ↓	Views	Estimated minutes watched	Average view duration
Feb 3, 2014	468 (11%)	1,529 (13%)	3:16
Feb 2, 2014	95 (2.3%)	364 (3.1%)	3:49
Feb 1, 2014	64 (1.5%)	126 (1.1%)	1:58
Jan 31, 2014	20 (0.5%)	25 (0.2%)	1:15
Jan 30, 2014	13 (0.3%)	23 (0.2%)	1:47
Jan 29, 2014	42 (1.0%)	34 (0.3%)	0:48
Jan 28, 2014	6 (0.1%)	20 (0.2%)	3:21
Jan 27, 2014	23 (0.6%)	78 (0.7%)	3:24
Jan 26, 2014	1 (0.0%)	0 (0.0%)	0:01
Jan 25, 2014	1 (0.0%)	0 (0.0%)	0:02
Jan 24, 2014	6 (0.1%)	0 (0.0%)	0:00
Jan 23, 2014	22 (0.5%)	43 (0.4%)	1:56
Jan 22, 2014	1 (0.0%)	0 (0.0%)	0:12
Jan 21, 2014	19 (0.5%)	5 (0.0%)	0:15
Jan 20, 2014	11 (0.3%)	14 (0.1%)	1:16
Jan 19, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 18, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 17, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 16, 2014	59 (1.4%)	52 (0.4%)	0:52
Jan 15, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 14, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 13, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 12, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 11, 2014	0 (0.0%)	0 (0.0%)	0:00
Jan 10, 2014	1 (0.0%)	0 (0.0%)	0:17

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Student Response and Feedback from Evaluations

My YouTube channel has had almost 10,000 views since May 2012 from three 130 student classes, one 22 student class (Honors), and current 130 student class.

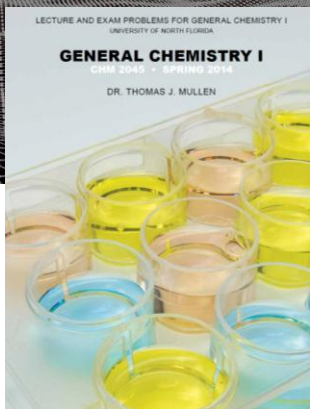
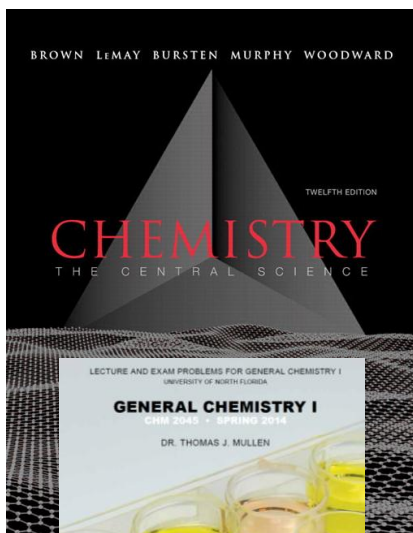
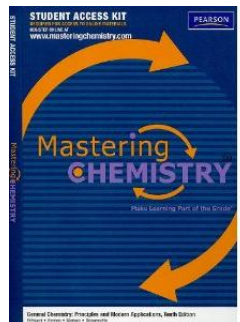
Number of views per class seem to increase every semester. Students seem to find them and realize their usefulness sooner.

Overwhelming positive comments related to the YouTube videos.

Students typically comment that they wish more faculty would use YouTube videos.

In CHM2045H, students make their own video walkthroughs of various sample problems.

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