

# YouTube University: The Benefits of Recording Lectures

Steven J. Miller and Adam Wang, Williams College

`sjml@williams.edu`, `Jianjun.Wang@williams.edu`

[http://web.williams.edu/Mathematics/sjmillier/public\\_html/](http://web.williams.edu/Mathematics/sjmillier/public_html/)

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## Introduction

## Using technology to help with challenges

Many ways to use technology, concentrating on recordings.

Two very different options: straight recording, OIT-production.

- Calc III: Taylor Series in a Day: Sony Flip Cam:  
<https://www.youtube.com/watch?v=yr01SLw9t4c>.
- Calc III: Green's Theorem in a Day: OIT Camera Crew:  
<https://www.youtube.com/watch?v=Iq-OglGAtOQ>.
- Double plus ungood:  
<https://www.youtube.com/watch?v=Esa2TYwDmwA>.

Function of money and time what can do.

## Integrating recorded lectures

What is the purpose of recorded lectures?

- More material (both at home and in class).
- Aids absent students / students who want to review.
- Use material as review / supplement in other classes.
- Easier to travel.
- Remote students.

## Unexpected bonus: I was fine during a gas evacuation!



## Implementation Issues

## Implementation issues

- Will students watch it?
- What will they get from it?
- How effective is it?
- Difference b/w upper level and lower level courses.
- Strength liberal arts colleges knowing each other, lose greatly online.

## Remote Student: Post-core Complex Analysis

My overall experience taking a class online was very positive. This was an opportunity to take a class that I would have otherwise not have been able to take (except as an independent study). Without the structure, a fixed syllabus, and helpful lectures, I wouldn't have covered as much material in an independent study. Once we overcame the technical hurdles and were able to have videos for all lectures, I benefitted tremendously from the lectures. Despite watching with headphones in a quiet section of a library, I found it more challenging to focus on watching the videos than focus on a professor in a physical classroom. I got distracted more often than I would in a physical classroom and would have to watch some videos more than once. Further, I didn't have the option of clarifying things in the moment (with another student or the professor) and felt more compelled to figure things out myself before emailing a fellow student or the professor. While this meant that I had to work harder on watching videos multiple times or re-reading sections of the textbook, I would say that the overall experience was more challenging, but not less meaningful, than a course in a physical classroom.



## Local Student: Multivariable Calculus

The partial flipping was a successful, interesting twist to class (though I think it worked in large part b/c of Prof Miller's way of teaching). Your website with many different kinds of practice problems, lecture notes, and additional comments with various links played an influential role to my performance in this class. I watched all the videos you sent via email and on GLOW. I watched some of the optional videos on the webpage when I had time or something I wanted to learn more about. Most of the time, however, I watched the mandatory videos after class b/c I viewed the online videos as good reviews of the lecture for that day rather than as previews since I prefer learning new material in person. Also, I watched all of the lecture videos for that class day when I got back to my room and took more notes for things I missed or wanted to emphasize b/c I found them important. You don't know how helpful these recordings were since we cover so much material in such limited time. As a student, I really appreciated this partial flipping system and the available online resources – it really worked.

## YouTube and the World: Broader Impact

- Often don't know who watches, though some contact.
- Broader impact: posting general lectures, research talks, conferences.
- Standard tutorials: saves time.

Technology end

## Technology issues

- OIT recording: high quality, time intense:
  - ◇ Processing time.
  - ◇ Student workers.
- SONY flip cam: low quality, easy, not as good but good enough?
  - ◇ Big issue: blackboard real estate.
  - ◇ Simple: just upload to YouTube!

## Analytics from videos

- WHO watched WHAT and HOW MUCH?
- Does watching help students?
- Should lecture recording be broken into smaller segments?
- YouTube or not YouTube?

Future

## Going forward....

- Hollywood level videos great, lot of time and effort but better understanding?
- How much to flip, and how to integrate?
- Split work among several institutions?

## Video References



## Video References

- OIT videos:
  - ◇ Double plus ungood: Discusses applications of Fibonacci numbers to roulette, 6:43 minutes:  
<https://www.youtube.com/watch?v=Esa2TYwDmwA>
  - ◇ Duality: Introduction to duality and linear programming, 3:30 minutes:  
<https://www.youtube.com/watch?v=aMorrlh4Egs>
  - ◇ Tangent lines: Review of tangent lines, 3:33 minutes:  
<https://www.youtube.com/watch?v=1EJ06epMLEQ>
- Course videos: Probability, Complex Analysis, Calculus III:  
[http://web.williams.edu/Mathematics/sjmillier/public\\_html/videoclasses/index.htm](http://web.williams.edu/Mathematics/sjmillier/public_html/videoclasses/index.htm)
- Tutorial videos:
  - ◇ LaTeX: <http://www.youtube.com/watch?v=dKUtJpG4Rt0>.
  - ◇ Mathematica: <http://www.youtube.com/watch?v=g1oj7CIqGM8>.
- Calculus videos:
  - ◇ Calculus review: <https://www.youtube.com/watch?v=xYzQL0TUtBA>.
- Conferences / Talks:  
[http://web.williams.edu/Mathematics/sjmillier/public\\_html/math/talks/talks.html](http://web.williams.edu/Mathematics/sjmillier/public_html/math/talks/talks.html).