

History of the course

- Started in Spring 2009 as a team-taught 2 credit hour course
- Taught in computer lab with a document camera and an LCD projector
- Chris started teaching it by herself until Spring 2013 when Sharon took over
- Taught in our Math Ed classroom with SMARTBoard & Promethean Board
- Currently it is a 3 credit hour course

Motivation for the course

- SDSU certification program required 2 credit hour course, Computer-Based Technology & Learning
- 2007 laptop initiative by then Governor Mike Rounds
- Current students and alumni felt that they needed more math-specific technology practice
- K-12 districts had more and better technology than higher education

Changes to the course

- Team taught ———> Taught by one of us
- Computer lab ———> Math Ed classroom
- TI-82, 83, 84 ———> TI-Nspire
- Geometer's Sketchpad ———> Geogebra
- ———> Two interactive whiteboards
- ———> Promethean slate
- ———> Classroom set of mini iPads
- Focusing on Common Core Stat & Prob standards (part of last year & this year)

Technology Used

- Voicethread
- Google (blogger, docs, forms)
- Graphing calculators (TI-Nspire, Desmos, & Geogebra)
- Spreadsheets (Excel & Geogebra)
- iPad & iPad apps
- Interactive whiteboards (SMARTBoard & Promethean board (slate also)
- Video recording (Educreations, ShowMe)
- Tablet PC
- Course management systems (D2L, Edmodo, Schoology)

Class Blog

- Used Blogger
- Instructor wrote first blog each semester, blog post over spring break, and last blog post
- Students wrote two blogs (Spring 2013) or one blog (Spring 2014)
- Alumni asked to add that we keep the same blog address so we can have a historical record of changes in technology
- **Math 371 Class Blog**

VoiceThread

- Web-based digital story-telling program that allows teacher to upload a photo or document, comment on that file, and invite students to comment as well.
- Replaced article reviews
- **VoiceThread Discussion on Common Core Stat & Prob standards**

VoiceThread Rubric

Criteria	Level 3 3 points	Level 2 2 points	Level 1 1 point
Participated in Discussion	Posted to discussion more than 3 times	Posted to discussion 1 or 2 times	Did not post to discussion
Postings clearly demonstrated that student had read the material	Posting clearly referred to specific parts of the reading	Posting referred to another student's post, but it wasn't clear that student completed the reading	Postings did not refer to a specific part of reading
Answered Questions	Student clearly answered all questions asked	Student answered some of the questions but not all of them	Student did not answer the questions
Interaction with other students	Student clearly made an effort to refer to other students' postings or to target something in the document to generate more discussion on the reading	Student referred to other students' postings only once or did not make a large effort to generate discussion about the reading	Student never referred to other students' postings or did not make comments that would generate discussion about the reading
Thoughtful	All Postings were very thoughtful and demonstrated that student not only completed the reading, but put some thought into it.	Some postings were thoughtful so it wasn't clear that student had gone beyond just reading the material.	Postings were matter of fact items found in the reading so did not require much thought.
Overall Score	Level 3 14 or more	Level 2 9 or more	Level 1 0 or more

Spring 2014 iPad App Assignment

- As you are trying to identify, good math apps for the iPad, please use the iPad rubric that was created by the 371 class last spring.
- Be prepared to demonstrate to the class at least one iPad math app. Be sure to include:
 - Rubric score <http://SDSUIPadAppRubric.questionpro.com>
 - Cool features of the app
 - Things that you don't like about the app
 - Answer the question: Should we all download it to our iPads?

Spring 2014 Group Presentations—Hot Topics in Technology

iPads vs Chromebooks, Bring Your Own Device, Personalized Learning, Standards-Based Grading

Things you need to include in your presentation:

- Definition/Explanation of the topic
- List of Pros & Cons of the topic

- What you learned by exploring the topic
- Your opinion on the topic—did it change after doing some research?

TI-Nspire

- Get familiar with the TI-Nspire calculator.
- Demonstrate a tool, feature, activity on the Nspire for the entire class.
- Some helpful websites:
 - **TI website**
 - **Website from Leah Nillas, faculty at Illinois Wesley**
- More TI-Nspire activities, this time focusing on statistics and done in pairs.
 - **Website that they were given to help them**

Geogebra

- Select one of the Common Core Statistics & Probability standards and demonstrate how you could teach the topic using Geogebra.
- Helpful websites to use:
 - **Project Maths Development Team 2013**
 - **David Gurney's Creating Statistics Applets with Geogebra**
 - **Malin Christerrson's Geogebra Tutorials**

Desmos

- Create something artsy using Desmos.
- Don't copy another person's creation, but you may want to look at these **Desmos staff picks**.

First Place	Second Place	Third Place
Fourth Place	Fourth Place	

Journal Entries

We have now used three different graphing devices--TI-Nspire, Desmos, and Geogebra.

1. List the pros and cons of each one.
2. If you could only have one of these for your classroom, which one would you choose? Why?
6 chose Geogebra, 5 chose TI-Nspire
3. If you were allowed two of them for your classroom, which ones would you choose? Why?
10 chose Geogebra & TI-Nspire, 1 chose Geogebra & Desmos

Social Media

- Students' profiles on Facebook & Twitter
- Lengthy discussion on SnapChat
- Cyber bullying
- Reading together & discussing **It's complicated: The social lives of networked teens** by Danah Boyd

Excel

- **2013 Michigan Statistics Seminar**
- **Project – SET**
- **STEW**
- Several of these lessons can be done using Excel--no Box-and-Whisker plot
- Armspan vs Height activity in class—linear regression line
- **Activity on Line of Best Fit**

Edmodo vs Schoology (Spring 2013)

- Each group picks a CCSS-M Stat & Prob Standard
- Create a course in the program with the other group as students in your course
- (50 POINTS) Course content must include:
 - Video lesson on some content topic of your choice—10 to 12 minutes
 - VoiceThread Discussion on some content topic of your choice (should be different topic than video)
 - Discussion board—can be same topic or different from video
 - Create a QR Code for your course
 - Quiz on the video lesson
- (10 POINTS) Interview Dr. Vestal on parent perspective.
- (40 POINTS) Write a summary of this project which includes (3 – 5 pages double-spaced):
 - Pros & Cons of Software (from teacher perspective)
 - Pros & Cons of other group’s software (from student perspective)
 - Pros & Cons of Software (from parent’s perspective, interview with Dr. V)
 - Decision as to whether or not you would use this software when you are a teacher.

Peer Teaching

- One solo teaching activity will be required.
- Topic from the 6 – 12 Common Core Probability & Statistics standards
- Write a thorough lesson plan.
- 30 minute presentation using technology that covers as much of the lesson plan as possible.
- The lesson plan will be graded by the instructor, while the presentation will be graded by your peers, as well as by the instructor.

Peer Teaching Rubric

- Name of Presenter _____
 - Topic of presentation _____
- | | |
|--|--------|
| | 0–3pts |
| ○ INTRODUCTION – MOTIVATED INTEREST IN LESSON | _____ |
| ○ DEMONSTRATED A HIGH LEVEL OF PREPARATION | _____ |
| ○ DEMONSTRATED KNOWLEDGE OF THE TECHNOLOGY USED | _____ |
| ○ MATHEMATICAL INFORMATION COMPLETE AND ACCURATE | _____ |
| ○ EFFECTIVE USE OF TECHNOLOGY | _____ |
| ○ ABILITY TO TROUBLESHOOT TECHNOLOGY ISSUES | _____ |
| ○ REINFORCED AND ENCOURAGED LEARNER INVOLVEMENT | _____ |
| ○ PERSONAL QUALITIES – VOICE, POISE, EYE CONTACT, ETC. | _____ |
| ○ DEMONSTRATED ENTHUSIASM | _____ |
| ○ PRESENTED MATERIAL IN INTERESTING & LOGICAL MANNER | _____ |
| ○ USES ACCEPTABLE WRITTEN AND ORAL EXPRESSION | _____ |
| ○ STRENGTHS OF THE PRESENTATION | |
| ○ SUGGESTIONS TO IMPROVE THE PRESENTATION | |

Video

- Work with your group members to build an animated or video math lesson to teach a probability or statistics topic.
 - It must include mathematical content. This means that it should help a student better understand some concept in mathematics.
 - It should target grades 6 -8 or 9 -12.
 - Be creative, have fun, and try to make your video fun!
- Some platforms you can use to build your video lesson:
 - Educreations app on iPad
 - ShowMe app on iPad—this app seems to have some examples in it when you open it. Do NOT copy the examples, but they may be helpful to you.
 - ScreenChomp app on iPad
 - Knowmia app on iPad
 - Microsoft Photostory (free to download)
 - Windows Movie Maker
 - Pivot Animation
 - SAM Animation

Future

- Continue to modify course activities as technology changes
- Have students create a math app (not sure if that is realistic in one semester)
- May change it to a 2-credit course with upcoming curriculum changes