

## Lunch@ITE – Fall 2018 Schedule

**Tuesday, September 25:** *Using Reflective Journals to Promote Student Metacognition, Connection, and Retention*, presented by Maria Stanko

Strategies that encourage students to think about and take control of their own learning (metacognition) can improve student learning. Students who feel engaged with their learning and connected to each other and to the instructor are more likely to be successful. Instructors can use reflective learning journals to encourage students' metacognitive abilities. At this session, we will review evidence for the effectiveness of reflective journals, discuss ways to incorporate journals into course assessment, present sample rubrics, and survey student and instructor responses to the use of journals as a learning tool.

**Tuesday, October 2:** *The History of Calculus: Integrating Historical Content into Modern Curricula*, presented by David Shirokoff

Major advances in mathematics, such as calculus, often occur when people are faced with the need to solve real problems. However, historical motivation is often forgotten and not incorporated in modern course lectures. This talk will survey several historical problems that led to various developments in calculus. We will also highlight how several of these examples can be naturally incorporated into course content as a way to keep students engaged during class, and to broaden their general knowledge.

**Tuesday, October 9:** *Introducing Scientists and Engineers to the Commercialization of Technology*, presented by Michael Ehrlich

NSF, NIH, DoD, DoE and others spend billions of dollars each year on basic research by university based researchers. Many academics develop new technological innovations that could be valuable innovations in the business world, but often their novel technologies remain embedded within the university. During this session, we propose to talk about some of the challenges and opportunities for academics to explore the commercialization of their novel technological innovations. NJIT has a generous policy to share the income from IP, so there could be significant financial benefits to faculty who successfully commercialize technology.

**Tuesday, October 16:** *Encouraging Student Engagement in Gen-Ed Courses*, presented by Liz Petrick

Teaching Gen-Ed courses provides an opportunity to encounter a wide range of students from across the university. Sometimes your students will be majors in your department, but often they will come from other departments and colleges. It is difficult to predict what kind of background knowledge your students will have and to attract their interest in subject matter they may feel they're being forced to learn. You want to not only teach at a level that reaches all potential students but to also engage them in the subject matter. This session explores various techniques (such as assignments, exams, classroom management, and lecture plans) that can help encourage student participation in the course and achieve greater learning outcomes.

**Tuesday, October 23:** *Attitudes, Activities, and Exams*, presented by Gordon Thomas

This session examines how instructors in an introductory course can use these pedagogies to improve standards and retention.

**Tuesday, October 30:** *STEM Education and Social Issues: Perceptions and Pedagogy*, presented by Neel Khichi

Students at STEM-based higher education institutions research ways to build and improve infrastructure, study methods to face climate change, create algorithms to improve day-to-day efficiency, and design apps that benefit our lives and ones that provide solutions to problems we face as a society. However, STEM institutions are generally not known for their emphasis on addressing social issues. Often students do not enroll in STEM institutions to learn about issues that affect our national and global communities. Garibay (2015) found that STEM students who seek to become engineers, computer scientists, and scientific researchers have low levels of social awareness and view the importance of working for social change as less important to their career goals. In addition, students who spent time as a STEM major are more likely to show signs of lower social awareness at the end of college, and a disconnect exists between majoring in a STEM field and student understanding of diverse global communities.

An intervention module that focused on social issues and social inequity was used to investigate student beliefs of the social issues and social inequity topics. Further, the study examined to what extent a redesigned STS (Science, Technology and Society) course at the New Jersey Institute of Technology influenced student perceptions of social issues and how their work can potentially be seen as a catalyst for social change. Student written responses, a researcher reflective interview, a questionnaire, and a focus group were used in this qualitative action research study.

**Tuesday, November 6:** *An Alternative Approach to Differential Calculus*, presented by Jay Kappraff

Prof. Paul C. Rosenbloom, a renowned mathematician, suggested an alternative approach to differential calculus based on defining the derivative as the slope of the line which is the nearest approximation to the graph of a function within an error of “little  $o(h)$ ” It turns out that this approach is equivalent to non-standard analysis which was much considered during the 1970’s. It enables the computation of derivatives and the derivation of the product rule, chain rule, inverse functions, and Cauchy Riemann conditions by employing a simple device that I call “the derivative machine.”

**Tuesday, November 13:** *Encouraging OER Adoptions: Experiences with the Open Textbook Initiative*, presented by Ann Hoang and Melodi Guilbault

A major problem currently facing education in America is the rising cost of obtaining a college degree. While tuition increases predominate costs, college textbook prices have risen at an alarming rate. The open textbook initiative at NJIT aims to ease the financial burden associated with an increase in textbooks costs through the use of open educational resources. Engage in conversations with Melodi Guilbault about what it takes to redesign curriculum and engage the whole students in deeper learning. She will share her challenges and successes that she experienced in the OER adoption process. She will share her reasons for adopting OER for her courses, the benefits of OER and talk about how OER encourages and supports academic freedom, regarding individual teaching philosophy, individual teaching style, discipline area, and meeting diverse student needs.

**Tuesday, November 27:** *Developing a Faculty Led Study Abroad Course*, presented by Melodi Guilbault

Developing faculty led study abroad programs has a number of challenges. These include getting administrative buy-in, developing programs that aren't cost prohibitive, and recruiting students to participate in these programs. This Lunch and Learn will provide you with the insights on how to navigate these challenges.

**Tuesday, December 4:** *Using ePortfolios to Showcase Student projects*, presented by Jaskirat Sodhi

Portfolios have long been used by artists and professionals in the architecture field as a collection of creative work that can be used to demonstrate one's proficiency in certain skill sets and to seek further work. An ePortfolio is on the same lines, but it is an online collection. For engineering students, this could be used as a great opportunity to demonstrate their understanding of technical concepts by showcasing key engineering projects or work experiences that they have done for various courses across their curriculum or as part of their internship experiences. I have implemented these in upper division undergraduate classes, but propose to expand this from course level to program level. It can be started in students' first year at college itself such that it can be a tool for tracking academic growth and helping students make a connection between courses and also self-reflect on their education. In this session, I will share details about these ePortfolios, how to implement them in a course, a few examples created by students, and some quantitative and qualitative feedback received from students about them.