# 15th Annual Niagara University International Conference on Teaching & Learning

**Active and Integrative Teaching and Learning**

January 11-12, 2016  
Niagara University

## Conference Overview

### Monday, January 11

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<td>Registration</td>
<td>St. Vincent’s Hall, 4th Floor</td>
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<td>1:45 - 2:30</td>
<td>Concurrent session I</td>
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<td>2:30 - 3:30</td>
<td>Reception and poster session</td>
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<td>3:30 - 5:00</td>
<td>Keynote Address: <em>Dr. Ken Bain</em></td>
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### Tuesday, January 12

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<td>Plenary Session II: <em>Dr. Ken Bain</em></td>
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**Keynote Speaker:**

Ken Bain is one of the best-known teachers and scholars of teaching and learning in the US and the western world. A well-accomplished historian, he earned his reputation in teaching and learning with the 2004 publication of What the Best College Teachers Do, one of the most widely-read and influential scholarly books published in the U.S. in the last half century. He is currently the president of the Best Teachers Institute, a research and educational organization, but he spent much of his academic career at Vanderbilt, Northwestern, and NYU before becoming Provost and VP for Academic Affairs, and Professor of History and Urban Education, at the University of the District of Columbia, a post he left in July 2013. His now classic book What the Best College Teachers Do won the 2004 Virginia and Warren Stone Prize for an outstanding book on education and society. The sequel, What the Best College Students Do, won the Virginia and Warrant Stone Prize in 2012. Dr. Bain has won four major teaching awards and received awards from numerous foundations, libraries, and associations.
Session 1A: St. Vincent’s Hall, #301
Assessing Great Teaching: Psychometric Properties of a New Measure Based upon Bain’s Principles of Great Teaching
Peter Butera, Paul Schupp, Timothy Osberg, Niagara University
Ken Bain’s book, What the Best College Teachers Do (2004), has become a contemporary classic in the scholarship of teaching and learning. In it, Bain studied 60 to 70 college teachers at two dozen institutions whom he identified as great college teachers (GCTs), exemplars recognized by peers who had achieved lasting learning impact with their students (p. 4). Bain wanted to discern the lessons he took from the GCTs that can also help others teach well. The purpose of the present study was to evaluate the internal consistency and validity of a survey that examined the degree to which Niagara University professors viewed their own teaching and their students’ learning relative to the principles that Bain identified as the hallmarks of the GCTs. The 31 Likert-scale items on the survey were constructed around Bain’s six key elements that frame the components used to define great teaching. Study participants also provided a self-evaluation of their teaching effectiveness. The Cronbach’s alpha for the 31 items on the survey was strong with a value of .84, which reveals that the items demonstrate consistency in yielding what constitutes a mosaic of good teaching. Although the alpha values for the six subscales ranged from .24-.59, reflecting only fair to poor internal consistency for each subscale, inter-item correlations within subscales identified 12 items (two from each of the six subscales) that had a Cronbach’s alpha of .72. Those items, which we call the didactic dozen, provide a brief, efficient, and internally consistent measure of good teaching that can be substituted for the longer measure when brevity is preferred. An exploratory factor analysis revealed a two-factor structure underlying the 31 item scale. Based on a rational review of the content of the items contained within each, we labeled Factor 1 as, attending to student characteristics in developing a teaching approach, and Factor 2 as, demonstrating passion and enthusiasm. Despite a restricted range on the self-assessment measure of effective teaching we employed, the correlation between this measure and Factor 2 scores approached significance (p = .051). Implications for future research and applications will be discussed, including the ways in which the survey or the didactic dozen can be utilized along with other real world measures of good teaching.

Session 1B: St. Vincent’s Hall, #306
Addressing the needs of 21st century learners by using technology in teacher preparation: A pecha kucha session
Dennis Garland, Niagara University
PechaKucha or Pecha Kucha (Japanese:chit-chat) is a presentation style in which 20 slides are shown for 20 seconds each (6 minutes and 40 seconds in total). The use of online tools and tablet technology in education is growing and can provide a personalized learning environment for students. This presentation provides examples of web-based applications and tablet apps teacher educators can use, model, and incorporate into activities, assignments, and assessment. Using and modeling use of a variety of apps can enhance instruction and learning in higher education. Further, the use of tablets and apps in teacher education supports student abilities to select and consider how they will use them in their own practice. Teachers in 21st century classrooms are challenged to work together to meet the educational needs of every student. In addition, state and national standards require that teachers use various technologies to support teaching and learning. Examples throughout this session will be provided in ways that technology can be integrated into the classroom as either an instructional teaching tool or by offering additional support to all students. By implementing various technologies into the classroom, teachers can easily adapt and choose appropriate and motivating ways to create meaningful learning opportunities for general education students as well as students with special needs. The aim and scope of this session will embrace the need for creativity and improvement of technological applications within the classroom, and provide teachers with information that can be taken and applied to the classroom. Participants will: 1) be provided details of 20 technological tools for use in teacher preparation to support pre-service
teacher knowledge of technology. 2) be provided details of 20 technological tools for pre-service teachers who can generalize use for inclusive classrooms.

Session 1C: St. Vincent’s Hall, #307
Immediate Feedback: Experiments in Turning a Test into a Student Learning Opportunity
Ann Rensel, Kris Principe, Niagara University
We evaluate the relative effectiveness of using an immediate feedback learning assessment technique (IF-AT) on learning in two courses (one freshman and one junior/senior level) in the College of Business core curriculum. We piloted this technique during the spring 2015 semester. We now seek to apply this method in a controlled experiment to measure the impact on learning in business students over a semester. We mix the use of the IF-AT method with the use of traditional multiple choice exams throughout the semester but use only the traditional multiple choice method for the final exam. We measure the impact of IF-AT by evaluating student performance on the same course content questions on the cumulative final exam, to determine if the level of retention was higher when the students received immediate feedback on a concept during a prior exam. We will also use multivariate regression to determine the relative effectiveness of this technique for various student populations. Here our dependent variable is the improvement in learning, as measured by the change in test scores between the in class exam and the questions on the final pertaining to that content. Our independent variables will be academic standing (freshman, sophomore, junior, senior), course level (introductory or upper level), gender and either GPA or a student’s SAT (or ACT) score to control for overall academic ability. The audience will complete a short quiz based on the authors’ presentation using the IF-AT technique.

Session 1D: St. Vincent’s Hall, #311
Sustained structured mentoring program
Carrie Teresa, Christopher Aquino, Paula Kot, Niagara University
Niagara University’s Committee on College Teaching and Learning (CCTL) hopes to develop a sustained structured mentoring program in which junior faculty members are paired with teaching mentors who assist them in honing their teaching craft. From active learning techniques to effective dialogic lecturing, the mentorship program will be designed to facilitate active and meaningful development of teaching and learning among Niagara University’s faculty community. Mentorship duties would involve some or all of the following activities: classroom observations, assistance with syllabus design, active reflection and discussion of classroom strategies and lesson plans, and development of scholarship of teaching and learning. This initiative is commensurate with CCTL’s stated mission of creating a “learning community of faculty who are committed to exploring, developing, and implementing active learning/teaching strategies.” The sub-committee that has been formed to create this program has three goals in mind: (1) Building community among faculty across departments and colleges within Niagara University; (2) Promoting the professional development of junior faculty members seeking to strengthen their teaching as a part of their tenure portfolios; and (3) Encouraging more experienced faculty members to reflect on their own teaching styles through mentoring junior faculty. The purpose of this interactive panel discussion is to seek feedback from conference attendees on the structure and viability of this program. In particular, the panelists are hoping to garner feedback in the following areas: (1) Program structure and troubleshooting. Do attendees at other institutions have experiences with similar programs, and if so, how were these programs designed and implemented? (2) Promoting faculty participation. What are some incentives CCTL might offer to both mentors and mentees to participate in this program? (3) Vetting potential mentors. What qualifications should potential mentors possess, and what are some best practices for vetting potential mentors?

Session 1E: St. Vincent’s Hall, #312
Teaching and Learning about Diversity: Valuable Lessons from Peers
Natalia Y. Albul, Villa Maria College of Buffalo
An application of event production as a tool to integrate course content and real life has been implemented in academia. It creates an integrated curriculum that engages multidisciplinary students and develops active teaching environment (Johnson & Pate, 2014). Recent studies confirmed effectiveness of this methodology (Lei,
Lam, & Lourenço, 2015; Kim, Lin, & Qiu, 2015). A case study was based on an active learning method of event production to promote leadership development in Honors seminars for undergraduate mixed-major Honors students. The events production process focused on creating a fundraiser to benefit organizations that fit criteria of Villa Maria College core values. Implementation of the event production process allowed a transfer from passive learning environment to active engagement. This format assisted with achieving course objectives, and provided service learning experience for students. The event production was student-led, and comprised of brainstorming sessions, in- and out-of-classroom small groups meetings, large and small task completion, and culminated in the actual event. Students worked toward reaching the common goal in an enjoyable environment that stimulated their critical thinking and collaboration. Collaboration is one of the essential components for successful learning (Head, 2003). The case study demonstrated that as a result of event production process, leaders emerged and students developed higher awareness of responsibilities. In addition, they formed meaningful relationships that promoted academic success and retention. In conclusion, the event production process engaged students in achieving meaningful realistic goals, which mobilized students' potential to solve and plan for the tasks successfully by reaching course objectives. The audience will be engaged via the presenter demonstration of the mini event production.

**POSTER SESSIONS**
**MONDAY 2:30-3:30 PM**

**The Resume is Dead: Online Profiles Matter**
*Anthony Perrotta*

With an active understanding that the traditional paper resume is quickly becoming obsolete, "The Resume is Dead" addresses the "why and how" of creating digital portfolios and leveraging social media to build, connect and share teaching, learning and student voice. Importantly, within this conversation, a focus on the growing significance of social profiles will be shared as it pertains to post-industrial economic models; social media including the portfolio is a new and significant literacy that requires growing proficiency. Participants will take part in an active conversation and will be provided with tools to ensure that technology is actively used to create, connect and share. For more on presenter Anthony Perrotta, visit: https://aperrotta.wordpress.com/

**Evaluation of Case Studies and Learning Groups in teaching Analytical Chemistry**
*Robyn Goacher, Niagara University*

This poster will describe how case studies were integrated into Analytical Chemistry, a content-rich sophomore level science course. The cases used posed situations in which the students needed to learn important (and often dry) concepts about data quality, calibration methods and statistics and apply them to laboratory-based situations which mimicked career-relevant scenarios. The intended outcomes of integrating case studies were for the students to have more fun, explicitly link course content to important real-world applications, recall the concepts at greater depth in the future, envision greater career relevance of the course material, and build research and communication skills. It was also hoped that they would gain a greater sense of classroom community through permanent learning groups, who did group quizzes in class, as well as the lab-based case studies together. The success in meeting these ideals is evaluated based on how case studies did or did not impact student grades, and how students viewed the case studies and learning groups as assessed through student perception surveys.

**My Very Own Surface: Incorporating a Matlab-based Semester-long Project in Calculus III**
*Michael Barg, Niagara University*

While stopping short of providing my Calculus III students with a physical model of a surface, student groups of two select a surface to be their own throughout the semester. Their surface is the star performer in a semester-long Matlab-based project that I recently designed and implemented in my course. By giving each group of students just one surface to become intimately acquainted with, I believe that each individual will develop a deeper understanding of many course concepts. Moreover, by being asked to take a real interest in
their surface, to study and explore it, and to get to know it, the students will be invested in the development of their surface from its infancy as an equation through its growth as a manipulative computer image and finally to its re-parameterization in a more advanced coordinate system. Ultimately, the project provides a way for students to take greater ownership of their learning in a course where many of the ideas seem quite abstract at first glance. Understanding and describing objects in three-dimensional space is a main objective of Calculus III. However, students often struggle with the necessary visualization. Using pencil and paper to sketch objects in three-dimensional space using perspective can be challenging. Computer software often alleviates this hurdle. Matlab is a powerful mathematics software package used for research and teaching in academia and industry. My project requires students to work with Matlab as a visualization aid. In this talk, I will describe the project and its implementation. Participants will have an opportunity to engage with Matlab during the presentation. I will share some student commentary as anecdotal evidence of the effectiveness of the project.

Pathways to Enhance Learning Experiences: Discourses, Formative Assessment, and Critiques

Bernie Murray, Pat, Atkinson, Ryerson University

Pathways to Enhance Learning Experiences: Discourses, Formative Assessment, and Critiques Bernie Murray, Ryerson University, Associate Professor Pat Atkinson, Ryerson University, Teaching Assistant Studio classes provide theoretical and practical learning opportunities in lectures, critiques, and demonstrations. Integrated practice in studio learning environments requires that students share ideas and design solutions with peers and faculty industry professionals. Engaging conversations and critical analysis of products are interactive activities that promote deep learning and help students develop their identity as future professionals in the field. Critique discussions focus on design, quality, product saleability, creativity, marketing, or work in progress. Sessions for critique may be individual, small groups, or with the entire class. Discourse involves both the students and teachers who have opportunities to reflect as a group on their work and work in process. Four components of critiques include a focus on work; reflection on meaning and expression; verbal interaction; and discussion that describes future work and envisioning new possibilities. Students identify as professionals in this artistic domain as a result of discourse in critiques. Individual critiques provide students with constructive criticism to continue the development of a product from the conceptual stage to the final product. Small group and class critiques are used to involve the entire class as well as offer students with an opportunity to contribute by giving constructive feedback to peers. Faculty members act as facilitators encouraging participation from the entire class. Industry professionals offer alternative perspectives on student’s designs. Ultimately, the goal of a critique is providing experience for learning, growth, and the development of students’ work. This poster will contain information about the critique structure, assessment process, reflective questions as well as benefits to the students and the faculty members.

Grade Grubbing – the anatomy of a grade change request

Mark Gallo, Niagara University
Christina Taylor, Niagara County Community College

Today there is no shortage of internet resources that describe in detail the myriad ways that students can get professors to change their grades. For some students, a desire to request a change in grade may emanate from family or cultural pressures; for others, it may stem from a sense of entitlement or simply unrealistic expectations. Regardless of the reason, grade change requests can adversely affect the quality of life of a faculty member. In most instances, a request for a grade change likely just produces a temporary feeling of uneasiness or discomfort; in other cases, it may provoke anxiety and result in a professor inflating grades to avoid such situations in the future. In a worst case scenario, professors could actually experience an acute sense of fear with the occasional student who is unrelenting and aggressive. The good news is that while a few students have perfected the art of grade grubbing, the typical request for a grade change often follows a familiar cycle, and if a professor can recognize that cycle, he or she can take steps to intervene proactively. This session will describe the presenters’ personal experiences with grade grubbing as well stories that have been collected from their peers and offer reflections and strategies for new instructors on how to address this issue at the beginning of the semester, during the term, and after the course has concluded. Participants are asked to bring their tales of grade grubbing as well as their own approaches. This promises to be a great session for both new and experienced faculty to engage in a much needed discussion of this phenomenon.
Fourth Floor Amphitheatre, St. Vincent’s Hall
Keynote Speaker: Dr. Ken Bain
PLENARY SESSION I
TUESDAY 9:00-10:00 AM

Fourth Floor Amphitheatre, St. Vincent’s Hall
Speaker: Dr. Ken Bain

CONCURRENT SESSIONS II
TUESDAY 10:15 - 11:00 AM

Session 2A: St. Vincent’s Hall, #306
Improving Critical Thinking Through Team-Based Collaborative Discussion
Michael Barnwell, Niagara University
In a philosophy class, standard philosophical arguments and problems were presented. Instead of the professor explaining the canonical replies to those arguments and problems, students were separated into groups and prompted to arrive at those replies themselves. The aim was to improve active critical thinking skills in the students. The project achieved limited success. This presentation will explore the pitfalls this project encountered. It is hoped that members of the audience will be able to provide useful feedback and suggestions for future implementation.

Session 2B: St. Vincent’s Hall, #307
EntrepreNU: Engaging Students Across the Curriculum and Outside the Classroom
Mitchell Alegre, Kevin Blair, Corey Bower, Robert De Jaray, David Taylor, Niagara University
Recent reports point to a dramatic increase among students in some of the top business schools across the country for entrepreneurship-related offerings. This may only be exceeded by the interest and growth in social entrepreneurship, capped off in summer 2015 with Forbes’ $1 Million “Under 30 Change the World Competition.” This presentation will describe the design and implementation of EntrepreNU, a social entrepreneurship competition that asks students to use business principles and practices to address some of the most pressing social issues facing the local community. The presentation will also describe the response to the competition by students, some of the challenges and benefits, and the potential for initiatives like EntrepreNU to engage students across the curriculum and outside the classroom. The session will include reflections and observations on the competition from a student perspective.

Session 2C: St. Vincent’s Hall, #311
Real Project-based Collaborative Learning: A Case Study
Yonghong Tong, Niagara University
In Fall 2015, I initiated a real project-based collaborative learning, a new and challenging teaching and learning approach in teaching “CIS490A: Mobile App Development II”. The prominent characteristic of this course lies in the creation of some advanced technologies in mobile app development. Traditionally, each component is taught separately, and students may not integrate these components together with previously learned knowledge. The real project-based collaborative learning approach is a solution to this problem. The class is divided into teams of 2 students. Each team has a real mobile app project from a client. Each group has a meeting with the client and agrees on requirements for the project, and submits a plan for design and development. I give students guidelines and suggestions about the proposal. Students have their own after-class schedule for group meetings to collaborate on their projects. I make myself available in case students have questions or ideas to discuss. Each team presents the progress 3 times in class to get feedback and suggestions from the clients, peers, and the professor. By the end of the semester, students submit a project report, make a presentation, and demonstrate their developed applications in a teamwork format. Part of the team grade is given by the client. Using this real project-based collaborative learning approach, students gain many benefits. Students exchange ideas actively, creatively, and critically with peers and clients. This new approach increases students’ motivation and awareness of challenging real-life problems, improves teamwork skills, and engages
students in learning and community services. Preliminary surveys indicate students like this teaching and learning approach (formal survey data will be collected at the end of this semester).

Session 2D: St. Vincent’s Hall, #312
Educators’ Perspective of Institutional Shift in Focus to Online Programs: Discussion of Findings
Joseph Winter, Lei Han, Christopher Aquino, Niagara University
Danyelle Moore, Alfred State University
Online courses and programs have become increasingly common in higher education. Some universities have opted to redefine themselves from predominately “brick and mortar” to predominantly online in a very short period of time. Compared to traditional face-to-face course delivery, online offers greater flexibility in terms of time and location and has the potential to reach students in every corner of the world. The implementation of online delivery in traditional colleges often requires a large capital outlay for infrastructure and significant training of educators. A small liberal arts school that has invested heavily in teaching and learning resources, emphasizes active and integrated learning in its classrooms, and believes good teaching can make a difference in learning effectiveness is poised to fully embrace online delivery. However, before embarking on such a massive shift in strategy it was determined by our group that it may be wise that data be collected and analyzed inquiring about the views of the educators who would be affected by the decision and who could affect its outcome. Based on feedback about the survey, presented at two conferences (including CCTL 2015), the researchers deployed the survey to a diverse set of institutions in the summer of 2015. The study, intended to gather information from educators across institutions to provide decision makers with greater insight on how best to structure and achieve buy-in for such a change. The survey included questions related to the choice of technology, appropriate implementation strategy, issues of academic integrity, challenges and opportunities for an additional focus, costs and benefits, etc. During our presentation, we will present the top findings the researchers found most interesting or surprising. The session will be informal, involve much open discussion about the findings and small group work relating to opportunities and experiences the session attendees have to contribute.

Session 2E: St. Vincent’s Hall, #315
Mentoring and being mentored: Collaboration is a two-way street!
Dennis Garland, Paul Vermette, Niagara University
Synergy amongst colleagues in higher education is critical to organizational, personal, and professional growth. Seasoned faculty members have a wealth of experience and practical insight to share with their more neophyte counterparts in terms of rapport building, teaching methodology, and theoretical perspectives. In turn, newcomers in the field of higher education are often more equipped to integrate 21st century technologies into their practice. This session is the manifestation of a novice professor seeking mentorship from a veteran colleague and the reciprocity that was sought in the form of support with technology integration. The presenters will discuss their collaboration in a secondary teaching methods course in the College of Education. Participants will: (1) examine the details of this specific collaboration in order to, (2) tailor to their own context. In addition, materials will be distributed to guide colleagues seeking to strengthen their teaching practice and professional relationships.

Session 3A: St. Vincent’s Hall, #311
Reflective Journaling in the Humanities
Stefanie Wichhart, Niagara University
Reflective journaling has long been used in the field of education and in pre-professional programs to provide students with an opportunity to reflect on what they are learning or to reflect on practicum experiences. This technique is far less common in the humanities. I would like to share my experience with incorporating reflective journaling into a history research seminar, as well as some of the research that highlights the benefits of this technique. Journaling exercises have helped me to tackle two major challenges students face in writing a
Increasing Student Understanding of Text with Reading Guides
Sharon Green, Niagara University

When students read “just to get it done,” their understanding may be compromised. I provide Reading Guides for some articles in my integrated reading-writing course. They are modeled after a sample in John Bean’s "Engaging Ideas: The Professor’s Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom." Reading Guides suggest strategies such as pre-reading; noticing textual organization; asking questions; annotating; locating main ideas; increasing vocabulary; and allocating adequate time for reading. I will share results of a student assessment, and we will discuss using Reading Guides with a variety of texts.

Participants will receive sample Reading Guides. Detailed summary (260 words): Some students have a limited reading background; some dislike reading; others read quickly “just to get it done.” Recent studies suggest that young people are reading fewer books; if so, some students enter college with limited reading experiences. This may compromise their understanding of complex college texts. In my integrated reading-writing course for first-year students, I assign one or two short articles per class. This regular reading provides students with continual opportunities to practice reading skills, it increases students’ exposure to college-level vocabulary, and it helps students develop a reading habit. To provide more guidance for reading college texts, I wrote “Reading Guides” to accompany the first ten articles. My Reading Guides are modeled after a sample in John C. Bean’s "Engaging Ideas: The Professor’s Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom" (2011). Reading Guides give students direction in how to read each article so they can begin to read in new and different ways. Embedded in my Reading Guides are strategies such as previewing and pre-reading; predicting; noticing textual organization; asking questions; annotating; locating main ideas; allocating adequate time for reading; and increasing college-level vocabulary. My Reading Guides also include information about the author and the source of the article. This presentation will describe how I integrate Reading Guides into my course. I will distribute sample Reading Guides, I will describe how my students use them, and I will summarize results of a student assessment of the Reading Guides. I will invite participants to consider how they might use Reading Guides in their courses.

Session 3B: St. Vincent’s Hall, #301

Integrating the TeachLivE Simulation Classroom into teacher preparation curricula for enhancing best practices
Dennis Garland, Niagara University
Krista Vince Garland, Buffalo State College

Demonstration of the mixed reality classroom will include an introduction to the setting, the virtual students, and the opportunities for attendees to engage with the students. Reflections on how to use virtual classrooms to better teaching practice will be shared.
Scholarly Literature to Modify Higher Educational Math Courses: An Exploration
Amanda Mangum, Chad Magnum, Niagara University
This project began with the presenters reading Ambrose et al’s How Learning Works: 7 Research Based—Principles for Smart Teaching and Benedict Carey’s How We Learn. After journaling on each chapter with a focus on how the presenters could make positive changes to their courses and discussing these ideas, several modifications were made to the way these professors taught Calculus I and Intro to Statistics in the Fall 2015 semester. Surveys were given to these courses mid-semester in order to gauge student perception of the course modifications. We will discuss the literature that influenced changes to our courses, the changes we implemented, and student perceptions of these changes. The presenters will also lead a discussion regarding changes that professors may make to their courses.

Session 3C: St. Vincent’s Hall, #307
Physical Models for Active Engagement and Improved Conceptual Understanding of Genetic Information Flow
Leslie Kate Wright, Rochester Institute of Technology
“Information flow, exchange and storage”, the foundation for modern genetics and genomics research and applications, has been described as one of the five core concepts required for undergraduate biology literacy by AAAS and the National Science Foundation. Topics related to information flow are visited numerous times throughout a biology curriculum but research shows that many students struggle to conceptualize and learn topics linked to information flow. In order to investigate this phenomenon more deeply, we have embarked on several long-term research projects investigating student understanding of information flow. Our results reveal that students routinely confuse building blocks (e.g. nucleotides) with macromolecules (e.g. nucleic acid), interchange molecules when speaking and/or writing (e.g. nucleic acids vs. amino acids) and have difficulty conceptualizing how information molecules (e.g. DNA, RNA, and protein) are actually put together/synthesized by the cellular machinery. In order to help students overcome these challenges we have incorporated numerous hand-held, dynamic, physical models in introductory and mid-level courses to let students explore topics about information molecules, their building blocks and processes of information flow. Using the validated Central Dogma Concept Inventory (CDCI) assessment tool, we have evidence to support incorporation of models into student-centered classroom activities improves learning on a number of topics related to information flow. In this session participants will mimic the role of the student learner and use various hand-held, dynamic models to explore a variety of topics that are essential for learning about information flow. The session is designed to introduce instructors to models and elicit discussion on how they may be used in a variety of biology classrooms to support learning.

How structured should student research courses be? - A chemistry case study
Robyn Goacher, Niagara University
How structured should student research courses be? - A chemistry case study Dr. Robyn E. Goacher
Department of Biochemistry, Chemistry and Physics, Niagara University NY 14120
Every Chemistry and Biochemistry major at Niagara University is required to do between 4 and 6 credit hours of supervised research as part of their degree. The independent research requirement is motivated by the desire to have students take ownership over a project, engage in active reading and synthesis of the literature, design and execute hands-on experiments at the lab bench or on the computer, troubleshoot problems, criticize weaknesses and strengths of their approaches, interpret and evaluate the quality of the outcomes, and propose next steps. In my mind, nothing could be more close to true active integrated learning in science than doing research where the answers truly are unknown! This is what scientists do! However, student research in our department takes the form of independent studies, and is not taught as a regular “research methods” class. Some students seem to thrive in the independence of this setup, and illustrate a high level of self-motivation to keep their projects on track, while others flounder in procrastination despite high academic potential. Sometimes, the research endeavors, although they are of equal credit-hour weighting to other courses, are pushed to the back burner. I therefore struggle with the question of “how much structure should I impose on my research students?” It is an important skill to learn
time management and self-motivation but do I actually help students create a goals mindset? Should I offer students carrots and sticks if that is what they need? How structured should student research courses be? This talk will focus on preliminary data obtained from a poll of recent department graduates about their research experiences. Furthermore, current students were asked to generate a syllabus with what they viewed to be appropriate expectations for supervised research, which included aspects of safety, ethics, record-keeping and quality of reports and presentations.

CONCURRENT SESSIONS IV
TUESDAY 1:30 – 2:30 PM

Session 4A: St. Vincent’s Hall, #301
Using a co-teaching experience to analyze the effectiveness of instructional frameworks: Improving teacher skills and increasing student learning
Paul Vermette, Niagara University
Danyelle Moore, Alfred State University

Many higher education instructors are continuously searching to improve their teaching practice. The co-teaching model used allows each of the individual teachers to share skills with one another and the class using Chickering and Gamson (1987) and Vermette (2009) ENGAGING frameworks. Chickering and Gamson provide seven principles of a good professor while Vermette introduces eight keys to student success. Using the frameworks allowed the co-teachers to evaluate the student learning experience and practice specific teaching techniques. Information was collected through class observations, student reflections, and notes from co-teachers over the fifteen week course. Students reported believing the co-teaching model was effective in providing a deeper learning experience because of the skills each co-teacher brought to the classroom. The findings indicate that use of the ENGAGING framework was more applicable and enabled the students to play an active role in their own learning. This session begins with the case of a co-taught secondary teaching methods class with a diverse student and instructor population. The instructors set out to accomplish three goals through co-teaching. 1) Use the frameworks to guide development of course activities. 2) Reflect on teaching techniques and provide feedback for each other. 3) Use weekly student reflections to shape the class and as feedback on teaching techniques. The facilitators will introduce the frameworks, how they impacted planning, and student reflections. The participants will then participate in a chalk walk where they will be asked to work with groups to analyze the case study before creating applications for their classroom for each of the ENGAGING keys to success. The final time will be a debriefing and open for questions. Attendees will leave with overviews of the frameworks and best practices for integrating them into practice in higher education classrooms.

Teaching the Language of Mathematics
Debbie Bond, Villa Maria College

Teaching the Language of Mathematics Professor Debbie Bond Villa Maria College “Mathematics is a language and should be taught as such.” There are many theories as to how one acquires a first and second languages. We have behaviorists, constructivists, empiricists, nativists and sociologists, all attempting to define how one acquires language and/or how one learns a foreign language. In many cases students see mathematics as a language learning experience; thus for many children, mathematics is seen as a foreign language; the symbols and expressions provide a formidable barrier to understanding of mathematical concepts. In mathematics students are introduced to new symbols, vocabulary, grammar and new systems of analyzing their first language. The components of learning mathematics don’t simply involve procedures; mathematics involves a complex set of symbols that may not always have a one to one correspondence when translated into a student’s native language. Beyond symbols, mathematics contains word problems, in which new types of vocabulary are involved: mathematical, procedural and descriptive vocabulary. The goal of this paper is to demonstrate how one can explore mathematical language using multiple theories of language learning, second language learning and linguistics. The presentation will focus on procedural vocabulary, mathematical vocabulary and descriptive vocabulary. Further, it will examine both the syntax, semantics and symbolic representation of mathematics and how one teaches the interpretation of those symbols. The presentation will demonstrate how instructors can implement mathematical language learning within their classrooms without
sacrificing content or class time. Engagements will include discussion of symbols commonly used in mathematics. Further it will discuss how some of the most common symbols do not have a one to one correspondence as many languages do. Session will be interactive using the participants to help decipher application problems that involve mathematical terminology.

Session 4B: St. Vincent’s Hall, #307
Writing the Future: Integrating Ideas, Active Learning, and Solving Problems
Sierra Adare-Tasiwoopa api, Niagara University
With a NU CCTL grant, two fall writing courses were redesigned. One emphasized Deep Reading and Active Learning (DRAL) methods focused on students’ chosen interest areas, while the other centered on Problem-Based Learning (PBL) instructional methods grounded in a variety of “real world” scenarios. The goals were to 1) incorporate complex critical thinking tasks into the process of reading and writing, 2) comprehend the ways different disciplines use evidence to support claims, 3) foster deep integrated learning, and 4) compare the effectiveness of DRAL and PBL methods on student learning. A combination of informal and formal writing assignments, small group work, thought-provokers questions, collaborative learning, and other active learning strategies were used to engage students in both classes. Pre- and post-tests measured prior knowledge and skills and the extent of learning over the semester. The DRAL class formed deep reading habits through reading journals; informal reflective papers; formal writing assignments; and small group work on research projects, debates, and presentations. The PBL class explored current concerns across the disciplines, establishing links between reading and writing through solving real world tasks such as raising awareness of issues such as bullying in school by creating public service announcements, developing position papers on junk food in vending machines, legal briefs on the benefits and drawbacks of technology, and debating genetically modified organisms. The results of both methods’ effectiveness in engaging students and improving their cognitive skills will be discussed. Additionally, as this will be a hands-on session the audience will participate in actual small group exercises used in the writing classes to foster active and integrative learning. The exercises were constructed to contain some curricular links suitable for faculty to integrate into a variety of other disciplines.

Creative Education and Students’ Ideas about Learning Individually and in Groups: Understanding Creative Identities, Diversity and Assessment
Bernie Murray, Ryerson University
Creative Education and Students’ Ideas about Learning Individually and in Groups: Understanding Creative Identities, Diversity and Assessment Bernie Murray Ryerson University Associate Professor This qualitative study explored design and communication students’ perspectives about creativity, diversity, and assessment in higher education. The purpose was to understand this specific group of creative learners and obtain essential criteria for product evaluation in order to develop appropriate assessment rubrics. The study examined their experiences being evaluated individually and in group work. The research questions focused on creativity, diversity in their program, and assessment. Personal interviews with the participants provided insights into their experiences as undergraduate students. Additionally, they revealed ideas about learning and being assessed in group work. They described challenges that existed working in teams and ways that group work can be incorporated into class activities. All of the participants described their creative identities and what they were communicating in their work. They said that the assignments contained copious guidelines limiting their inspiration and expression. Design and communication students wanted criteria that guided them to be successful graduates of the program. Themes emerged about the criteria for assessment rubrics including the preparation, process, and product of work. Participants requested criteria such as inspiration; process of work; work effort and ethic; skill or quality; and application of techniques. Continual feedback was critical to enable them to achieve higher grades. Therefore, teachers’ written comments were essential as well as assignments that allowed them to incorporate new ideas, interests, and creative expression. They wanted opportunities for exploration, risk-taking, and problem finding. Specifically, the conference participants will engage in discussion in this session on the following: - Strategies for successful individual and group work; - Examine ideas about creativity and how it should be assessed; and - Reflect on assignments or activities that engage students providing opportunities for creative expression of ideas and interests.
Session 4C: St. Vincent’s Hall, #311
This is ground control to candidates anywhere: Piloting virtual seminar discourse in a capstone course in special education.
Dennis Garland, Alice Kozen, Niagara University
In a global economy, innovative approaches preparing teacher candidates to acquire the knowledge and skills necessary to become high quality special educators are mandatory. Many educational programs are offered completely online. This paradigm allows candidates to have flexibility with their scheduling and geographic location. However, disrupting the status quo of face-to-face content delivery presents unique challenges to faculty at institutions of higher learning. Foci such as delivering a high quality curriculum, measuring the acquisition of knowledge and skills among candidates, and engaging them in meaningful contexts often manifest themselves in unforeseen ways. To ameliorate these challenges, the researchers examined the effects of using a virtual learning environment to co-facilitate a seminar course to graduate teacher candidates in special education. This session explores the views of both instructors and candidates as they traversed a capstone class through a pilot virtual classroom. From planning the online syllabus to candidates’ impressions regarding their participation, the audience will be taken through the positive opportunities that were afforded as well as issues that still remain. As more and more students get acquainted with virtual classrooms, we will look at the true potential of interaction in these settings. The leaders of this session will share their experiences of co-facilitating an online graduate seminar course in a virtual environment and demonstrate the environment’s use. Topics will include elements of co-teaching and mentorship, technological considerations for using virtual learning interfaces, and enhancing student engagement.

Teaching Nonviolently: A Practical Guide for College Instructors
George Payne, Finger Lakes Community College
In this interactive workshop participants will learn about several practical strategies which can foster classrooms of mutual awareness, creative engagement, and other humane values. Topics will include the counter-productivity of letter grades, assessing without judging, responding to students as humans with feelings and needs, and ways to create genuine trust between instructors and students and between the students and their peers. Participants can expect to openly share about their unique experiences in the classroom.

PLENARY SESSION II
TUESDAY 2:45-3:30
Fourth Floor Amphitheatre, St. Vincent’s Hall
Speaker: Dr. Ken Bain