

**Cheryl Bodnar, Ph.D., CTD  
Curriculum Vitae**

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**EDUCATION**

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<i>Canadian Society for Training and Development (CSTD), Toronto, Ontario</i> <b>Certified Training and Development Professional (CTDP) designation</b>	<b>2010</b>
<i>University of Calgary, Calgary, Alberta</i> <b>Ph.D. in Chemical Engineering</b> Dissertation: "Expansion and Characterization of Human Pancreas Derived Cells"	<b>2006</b>
<b>B.Sc. with Distinction in Chemical Engineering</b> Overall GPA: 3.92	<b>2001</b>

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**AWARDS**

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• Martin Award for Best Paper Presented in the Chemical Engineering Division at the 2017 American Society for Engineering Education (ASEE) Annual Meeting	<b>2017</b>
• Raymond W. Fahien Award for Outstanding Teaching Effectiveness and Educational Scholarship presented by American Society for Engineering Education (ASEE) Chemical Engineering Division	<b>2017</b>
• University of Pittsburgh Swanson School of Engineering Office of Diversity Support and Leadership Award	<b>2015</b>
• American Society for Engineering Education (ASEE) Chemical Engineering Division Best Poster Award	<b>2014</b>
• American Society for Engineering Education (ASEE) Educational Research Methods Apprentice Faculty Award	<b>2013</b>
• Selected to participate in American Society for Engineering Education (ASEE) Virtual Community of Practice – Chemical Engineering and Materials Science	<b>2013</b>
• Selected to participate in National Academy of Engineering (NAE) Frontiers of Engineering Education Symposium	<b>2005</b>
• Best Presentation Award, Annual Faculty of Engineering Graduate Student Research Conference	
• Matthew Spence Prize for 3 <sup>rd</sup> Most Outstanding Oral Presentation, 5 <sup>th</sup> Alberta Biomedical Engineering Conference	<b>2004</b>
• NSERC PGS B Scholarship	<b>2003-2005</b>
• Alberta Ingenuity Incentive Award	<b>2001-2006</b>
• NSERC PGS A Scholarship	<b>2001-2003</b>
• APEGGA Gold Medal in Chemical Engineering	<b>2001</b>
• Louise McKinney Scholarship	<b>1999-2000</b>
• Canadian Society for Chemical Engineering Prize	<b>2000</b>
• NSERC Undergraduate Student Research Award	<b>2000</b>

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CAREER HISTORY

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*Rowan University, Glassboro, New Jersey*

**2016-Present**

**Assistant Professor**

**Experiential Engineering Education Department (75% Appointment),  
Management and Entrepreneurship (25% Appointment)**

- Continued growth of an educational research program. Particular areas of interest include implementation of game based techniques within the classroom and increasing the innovation and entrepreneurship capacity of engineering students
  - Instructor for Freshman and Sophomore Clinic
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*Henry M. Rowan College of Engineering, Rowan University, Glassboro, New Jersey*

**2015-2016**

**Assistant Professor**

**Chemical Engineering Department**

- Continued growth of an educational research program. Particular areas of interest include implementation of game based techniques within the classroom and increasing the innovation and entrepreneurship capacity of engineering students
  - Instructor for Freshman and Sophomore Clinic
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*Swanson School of Engineering (SSOE), University of Pittsburgh, Pittsburgh, Pennsylvania*

**2012-2015**

**Assistant Professor (Teaching Track)**

**Chemical & Petroleum Engineering Department**

- Established an educational research program. Particular areas of interest include implementation of game based techniques within the classroom and increasing the innovation and entrepreneurship capacity of engineering students
  - Instructed two Pillars course (six credit class) per academic year
  - Participated in the development of a new "Product Innovation" Sequence that involved three new courses focused on Chemical Product Design
  - Served as department contact point for all high school student meetings and freshman recruitment presentations
  - Served as an advisor to undergraduate Chemical & Petroleum Engineering students
  - Faculty advisor for Graduate Women in Engineering Network (GWEN)
  - Created and implemented a sexual harassment workshop for engineering students
  - Worked and collaborated with personnel within the Engineering Education Research Center (EERC) on engineering innovation education projects
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*Swanson School of Engineering (SSOE), University of Pittsburgh, Pittsburgh, Pennsylvania*

**2011 - 2012**

**Grants Developer**

*Identified relevant funding opportunities for faculty members*

- Edited grant proposals and ensured that they met with agency guidelines
- Coordinated multi-investigator proposals to ensure that all components of the application were assembled and that final proposal was cohesive
- Prepared grant related training workshops
  - NSF CAREER Workshop Series for junior faculty members
  - NIH R01 workshop (in coordination with Department of Radiology)
- Developed of web based grant resources for faculty members (Grant Development Resource Website and SharePoint Site)

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*Industrial BioDevelopment Laboratory (IBDL), University Health Network,  
Toronto, Ontario*

**2009 - 2010**

**Educational Training Manager**

- Developed and implemented scientific skill workshops in conjunction with industrial partnerships
- Participated in grant writing and yearly report writing
- Developed strategic partnerships with organizations, such as the Ontario Science Centre, to foster public outreach activities
- Developed and facilitated workshop on Presentation Skills and Networking (an Emotional Intelligence Approach).
- Formed alliances with the Ministry of Education, Let's Talk Science and Bioscience Education Canada to develop high school outreach initiatives.
- Managed IBDL summer student program
  - Development of content
  - Communication with university personnel
  - Coaching of undergraduate students.
- Participated in Multi Organ Transplant (MOT) professional development activities
  - Development of needs assessment tools
  - Design of programs
  - Development of evaluation tools
  - Completed Continuing Medical Education (CME) applications for MOT professional development activities.

*Industrial BioDevelopment Laboratory (IBDL), University Health  
Network, Toronto, Ontario*

**2007-2008**

**Pall Life Sciences Bio-Processing Post-Doctoral Scientist**

- Small scale suspension bioreactor operation
- Adaptation of protein producing CHO cell lines from serum containing adherent culture to serum-free suspension culture
- BCA protein determination analysis
- Small scale affinity chromatography operation
- Desalting and concentration of protein samples

*Pharmaceutical Production Research Facility (PPRF), University of  
Calgary, Calgary, Alberta*

**2006**

**Research Associate (part-time)**

- Preparation of research analysis reports

*Pharmaceutical Production Research Facility (PPRF), University of  
Calgary, Calgary, Alberta*

**2001 – 2006**

**Doctoral Research Student**

- Small scale suspension bioreactor operation
- Medium optimization studies and implementation
- Immunocytochemistry analysis
- Culture of several mammalian cell lines
  - Murine neural stem cells
  - Rat hepatic oval cells
  - Human pancreatic small cells
  - Various other human pancreatic cell types

*Pharmaceutical Production Research Facility (PPRF), University of  
Calgary, Calgary, Alberta*

**2000**

**Research Assistant**

- Culture of protein producing insect cell lines
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TEACHING EXPERIENCE

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<p><b>Instructor – Freshman Engineering Clinic II Lab</b> Lectured on course content including product design, ethics, statistics, economics, intellectual property and design software. Facilitated active learning including games, think-pair-share and group exercises. Facilitated lab instruction using problem –based learning approaches.</p>	<p><b>Spring 2016 &amp; 2017</b></p>
<p><b>Instructor – Sophomore Clinic I Lab</b> Lectured on course content including product design process, brainstorming, engineering career pathways and communication. Facilitated active learning in the classroom including games, think-pair-share and group exercises.</p>	<p><b>Fall 2015, 2016 &amp; 2017</b></p>
<p><b>Instructor – Junior/Senior Clinic</b> Mentored junior and senior engineering students on a variety of different research projects. Example projects include: Developing a board game to teach Principles of Chemical Engineering I; Development and assessment of a gamification platform for Freshman Engineering Clinic II; Creation of activities for Freshman Engineering Clinic II that will instill an entrepreneurial mindset; and Creation of Activities to Promote Diversity within Freshman Engineering Clinic.</p>	<p><b>Fall 2015, 2016 &amp; 2017; Spring 2016 &amp; 2017</b></p>
<p><b>Instructor – ChE 100 (Foundations of Chemical Engineering)</b> Lectured on course content material including manometers, material and energy balances, degree of freedom analysis. Facilitated active learning in the classroom including review games, clicker questions, think-pair-share and group exercises.</p>	<p><b>Fall 2014</b></p>
<p><b>Instructor – ChE 400 (Reactive Process Engineering)</b> Lectured on course content material including basic reactor types, non-isothermal systems, catalysis and enzyme kinetics. Facilitated active learning in the classroom including review games, clicker questions, think-pair-share and group exercises.</p>	<p><b>Spring 2013 &amp; Summer 2014</b></p>
<p><b>Instructor – ChE 214 (Introduction to Chemical Product Design)</b> Lectured on course content material including customer identification, brainstorming, market analysis and professional development skills such as project management, communication, teamwork and leadership. Facilitated active learning within the classroom through clicker questions, case studies, group exercises and think-pair-share.</p>	<p><b>Spring 2014 &amp; 2015</b></p>
<p><b>Laboratory Instructor – Engg 201 (Behavior of Liquids, Gases and Solids)</b> Lectured on properties of fluids, liquids and solids that pertained to laboratory experiments performed and assisted students in conducting laboratory experiments.</p>	<p><b>Winter 2003 &amp; 2004</b></p>
<p><b>Laboratory Instructor – Ench 403 (Heat and Mass Transfer)</b> Supervised and assisted students in conducting experiments on heat and mass transfer. Evaluated students on their understanding of the principles involved in the laboratory experiments through discussions with them.</p>	<p><b>Fall 2002</b></p>
<p><b>Teaching Assistant – Ench 505 (Separation Processes II)</b> Assisted students in solving assigned course problems and answered student's questions in preparation for the midterm and final exams.</p>	<p><b>Fall 2005</b></p>
<p><b>Teaching Assistant – Ench 403 (Heat and Mass Transfer)</b> Assisted students in conducting experiments on heat and mass transfer.</p>	<p><b>Fall 2003</b></p>

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Evaluated students on their understanding of the principles through marking of final laboratory reports.

**Teaching Assistant** – Ench 405 (*Separation Processes I*)

Conducted weekly tutorials and a study tutorial prior to the final exam which emphasized steps involved in problem solution. Responsible for helping students with any problems that they had with assigned course problems.

Winter 2002,  
2003 & 2004

**Teaching Assistant** – Ench 519.02 (*Introduction to Cell and Tissue Engineering*)

Graded assignments and answered student's questions in preparation for the midterm and final exams.

Fall 2001 &  
2002

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PEER-REVIEWED PUBLICATIONS

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**Bodnar, C.**, Christiani, T., Dahm, K. & Vernengo, A. J. (2017). Implementation and Assessment of an Undergraduate Tissue Engineering Laboratory Course. *Education for Chemical Engineers*, **Submitted to journal November 2017**.

**Bodnar, C.**, Hixson, C. Capturing Students' Perception of Entrepreneurial Mindset: Tools for What and Why. *Revision submitted to Advances in Engineering Education November 2017*.

**Bodnar, C.A.**, Kadlowec, J.A. (2018). Initial Validation of a Technical Writing Rubric for Engineering Design. *International Journal of Engineering Pedagogy*, Accepted for Publication November 20<sup>th</sup>, 2017.

Scanga, G.C., Monro, S.T., Park, J., Richards, S., O'Neil, S., Yadvish, E., **Bodnar, C.**, Hixson, H., Nelson, K. (2017). Journey to the Top: An Experiential Learning Activity for Engineering Entrepreneurship. *Experiential Entrepreneurship Exercises Journal*, **2**(3), 3-14.

Markovetz, M.R., Sullivan, S., Clark, R.M., Swiecki, Z., Arastoopour Irgens, G., Chesler, N.C., Shaffer, D.W., **Bodnar, C.A.**(2017). A Grounded Qualitative Analysis of the Effect of a Focus Group on Design Process in a Virtual Internship. *International Journal of Engineering Education*, **33**(6A), 1-8.

**Bodnar, C.A.**, Clark, R.M. (2017). Can Game-Based Learning Enhance Engineering Communication Skills? *IEEE Transactions on Professional Communication* **60**(1), 24-41

Markovetz, M.R., Clark, R.M., Swiecki, Z., Arastoopour, G., Chesler, N.C., Shaffer, D.W., **Bodnar, C.A.** (2017). Influence of End Customer Exposure on Product Design within an Epistemic Game Environment. *Advances in Engineering Education*, **6**(2).

Eichelman, K.M., Clark, R.M., Shooter, S.B., **Bodnar, C.A.** (2016). Iterative Development of a Game-Based Module to Teach Engineering Students about Customer Value Propositions. *Journal of Engineering Entrepreneurship*. **7**(3), 53-64.

**Bodnar, C.A.**, Bongiorno, W., Clark, R.M.(2016). Evaluating the Effectiveness of Game-Based Learning on Improvement of Student Learning Outcomes within a Sophomore Level Chemical Product Design Class. *International Journal of Engineering Education*. **32**(1) B, 448-456.

**Bodnar, C.A.**, Anastasio, D., Enszer, J., Burkey, D. (2016). Engineers at Play: Utilization of Games as Teaching Tools for Undergraduate Engineering Students. *Journal of Engineering Education*, **105**(1), 147-200. DOI 10.1002/jee.20106.

**Bodnar, C.A.**, Tranquilo, J., Matthew, V., Britos Cavagnaro, L., Monroe-White, T., Turrentine, A. (2015). Iteration by Design: Development of a Game-Based Workshop for Teaching Innovation and Entrepreneurship Concepts. *Experiential Entrepreneurship Exercises Journal*, **1**(4), 28-33.

**Bodnar, C.A.**, Clark, R.M., Besterfield-Sacre, M.(2015). Lessons Learned through Sequential Offerings of an Innovation and Entrepreneurship Boot Camp for Sophomore Engineering Students. *Journal of Engineering Entrepreneurship*. **6**(1), 52-67.

Petropavlovskaja, M., **Bodnar, C.A.**, Behie, L.A., Rosenberg, L. (2007). Pancreatic small cells: analysis of quiescence, long-term maintenance and insulin expression in vitro.

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*Experimental Cell Research.* **313**(5), 931-942.

**Bodnar, C.A.**, Sen, A., Kallos, M.S., Behie, L.A., Petropavlovskaya, M., Rosenberg, L. (2006). Characterization of Human Islet-Like Structures Generated from Pancreatic Precursor Cells in Culture. *Biotechnology and Bioengineering.* **93**(5), 980-988.

Chawla, M, **Bodnar, CA**, Sen, A, Kallos, MS, Behie, LA (2006). Production of Islet-Like Structures from Neonatal Porcine Pancreatic Tissue in Suspension Bioreactors. *Biotechnology Progress.* **22**(2), 561-567.

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PEER-REVIEWED CONFERENCE PUBLICATIONS

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**Bodnar, C.A.**, Mallouk, K., Faber, C. (2018). Student Approaches to Ambiguity while Working on a Community-Based Design Problem. *Submitted to 9<sup>th</sup> Annual Conference on Engineering Education for Sustainable Development (EESD), June 3-6, 2018. Glassboro, New Jersey.*

Strong, A., **Bodnar, C.**, Smith-Orr, C., Lee, W., Faber, C., McCave, E. (2018). Using a Critical Incident-Centered Transition Theory Framework to Explore Engineering Education Faculty Transitions. *Submitted to ASEE 2018 Annual Conference and Exposition, June 24-27, 2018. Salt Lake City, Utah.*

McCave, E., Faber, C., Strong, A., **Bodnar, C.**, Smith-Orr, C., Lee, W., (2018). Collaborative Research: Supporting Agency among Early Career Engineering Education Faculty in Diverse Institutional Contexts. *Submitted to ASEE 2018 Annual Conference and Exposition, June 24-27, 2018. Salt Lake City, Utah*

Basantis, A., DiPietroantonio, M., Geary, A.B., Ware, M.V., Mallouk, K., **Bodnar, C.A.** (2018). Student Perceptions of Engineering Based Upon Board Game Participation. *Submitted to ASEE 2018 Annual Conference and Exposition, June 24-27, 2018. Salt Lake City, Utah*

**Bodnar, C.A.**, Farrell, S., Jahan, K. (2018). Engineering in a Global Context: Changing Student Perceptions through a Hands-on Algae Project. *Submitted to ASEE 2018 Annual Conference and Exposition, June 24-27, 2018. Salt Lake City, Utah*

Butler, B.L., Anastasio, D.D., Burkey, D.D., Cooper, M., **Bodnar, C.A.** (2018). Work in Progress: Content Validation of an Engineering Process Safety Decision Making Instrument. *Submitted to ASEE 2018 Annual Conference and Exposition, June 24-27, 2018. Salt Lake City, Utah*

Farrell, S., **Bodnar, C.**, Forin, T. (2017). WIP: Using Concept Mapping to Develop Inclusive Curriculum. *Frontiers in Engineering Education Conference, October 18-21st, 2017. Indianapolis, Indiana.*

Butler, B.L., **Bodnar, C.A.** (2017). Establishing the Impact Gamified Homework Portals Can Have on Students' Academic Motivation. *ASEE 2017 Annual Conference and Exposition, June 25-28, 2017. Columbus, Ohio.*

Kulhanek, A.J., **Bodnar, C.A.** (2017). Chemical Engineering Student Perceptions of Communication Development from Participation in Game-Based Activities. *ASEE 2017 Annual Conference and Exposition, June 25-28, 2017. Columbus, Ohio.*

Faber, C., Smith-Orr, C., McCave, E., Strong, A., **Bodnar, C.**, Lee, W. (2017). Best Practices for Developing a Virtual Peer Mentoring Community. *ASEE 2017 Annual Conference and Exposition, June 25-28, 2017. Columbus, Ohio.*

Kulhanek, A.J., Markovetz, M.R., Irgens, G.A., Swiecki, Z.L., Chesler, N.C., Shaffer, D.W., **Bodnar, C.A.** (2017). Assessing the Effectiveness of Shah's Innovation Metrics for Measuring Innovative Design within a Virtual Design Space. *ASEE 2017 Annual Conference and Exposition, June 25-28, 2017. Columbus, Ohio.*

Jahan, K., Farrell, S., **Bodnar, C.**, Tang, Y., Miller, D., Wenger, P., Bhavsar, M., Savelski, M., Slater, C.S., Lomboy, M., Ieva, K. (2017). Algae Grows the Future. *ASEE 2017 Annual Conference and Exposition, June 25-28, 2017. Columbus, Ohio.*

**Bodnar C.**, Clark, R., Davis, J., Congedo, T., Cole, D. (2016). Student Perspectives on Application of Game-Based Learning within a Graduate-Level Engineering Course. *Frontiers*

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- in Engineering Education Conference, October 13-15<sup>th</sup>, 2016. Erie, Pennsylvania.
- Faber, C., **Bodnar, C.**, Strong, A., Lee, W., McCave, E., Smith, C. (2016). Narrating the experiences of first-year faculty in the Engineering Education Research community: Developing a qualitative, collaborative research methodology. *ASEE 2016 Annual Conference and Exposition*, June 26-29, 2016. New Orleans, Louisiana.
- Markovetz, M.R., Clark, R.M., Swiecki, Z., Arastoopour, G., Chesler, N.C., Shaffer, D.W., **Bodnar, C.A.** (2016). Innovative Design within the Context of Virtual Internships: How Can it Be Defined and How is it Related to the Student Design Process? *ASEE 2016 Annual Conference and Exposition*, June 26-29, 2016. New Orleans, Louisiana.
- Gulotta, J., Parisi, N., **Bodnar, C.A.** (2016). Leveling Up by Gamifying Freshman Engineering Clinic. *ASEE 2016 Annual Conference and Exposition*, June 26-29, 2016. New Orleans, Louisiana.
- Bodnar, C.A.**, Tranquilo, J., Matthew, V., Britos Cavagnaro, L., Monroe-White, T., Turrentine, A. (2016). Engaging in Play: Creating a Community of Practice to Support Game-Based Implementations for Teaching Innovation and Entrepreneurship. *NSF Envisioning the Future of Undergraduate STEM Education: Research and Practice Symposium*, April 27th-29th, 2016. Washington, D.C.
- Eichelman, K., Clark, R.M., **Bodnar, C.A.** (2015). Assessing the Impact of Game Based Pedagogy on the Development of Communication Skills for Engineers. *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Farrell, S., Krause, S., **Bodnar, C.A.**, Ciston, S., Corneal, L., Eitel, R., Genau, A., Lepek, D., Nelson-Cheeseman, B., Ruzycski, N., Shih, J.D. (2015). A Virtual Community of Practice to Introduce Evidence-based Pedagogy in Chemical Engineering and Materials Courses. *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Felse, A., **Bodnar, C.A.**, High, K., Keith, J., Minerick, A. (2015). Diversity in Chemical Engineering Education: Status and Perspectives. *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Lasota, N., Parker R.S., **Bodnar, C.A.** (2015). Preparing Students for the Complexity of the Systems Medicine Field through a Research Experience For Undergraduates (REU). *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Bodnar, C.A.**, Clark, R.M. (2014). Exploring the Impact Game-Based Learning has on Classroom Environment and Student Engagement within an Engineering Product Design Class. *Technological Ecosystems for Enhancing Multiculturality. TEEM'14*, October 1 – 3, 2014. Salamanca, Spain.
- Rogy, K., **Bodnar, C.A.**, Clark, R.M. (2014). Examining the Entrepreneurial Mindset of Senior Chemical Engineering Students as a Result of Exposure to the Epistemic Game “Nephrotex”. *ASEE 2014 Annual Conference and Exposition*, June 15-18, 2014. Indianapolis, Indiana.
- Bodnar, C.A.**, Beckman, E., McCarthy, J.M., Little, S.R. (2014). Work in Progress: A Vision for the First “Product Innovation Sequence” for Chemical Engineers. *ASEE 2014 Annual Conference and Exposition*, June 15-18, 2014. Indianapolis, Indiana.
- Volpatti, L., **Bodnar, C.A.**, Byland, L. (2014). Dealing with Harassment: A Workshop for Female Engineers. *ASEE 2014 Annual Conference and Exposition*, June 15-18, 2014. Indianapolis, Indiana.
- Bodnar, C.A.**, Clark, R.M., Besterfield-Sacre, M. (2014). Development and Assessment of an Innovation and Entrepreneurship Boot Camp for Sophomore Engineering Students. *NCAIA 2014 OPEN Conference*, March 21-22<sup>nd</sup>, 2014. San Jose, California.
- Bodnar, C.**, Schanck, J.F., Raghavan, K., Smith, N.G., Hess, K., Buirge, B. M., Melvin, R., Hackett, B. (2013). Work in Progress: Starfish Schoolhouse: Development of a Story Based E-Learning Module to Teach Regenerative Medicine Concepts to Middle and High School Students and Teachers. *ASEE 2013 Annual Conference and Exposition*, June 23- 26<sup>th</sup>, 2013. Atlanta, Georgia.
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INVITED PRESENTATIONS

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- Bodnar, C.A.** Leveling up the Student Experience through Gamification with Cheryl Bodnar. USASBE Teaching Tuesdays Podcast (Oct. 17<sup>th</sup>, 2017).
- Anastasio, D., **Bodnar, C.**, Burkey, D., Enszer, J. Our Engineer is in Another Castle: Getting Started with Game-Based Learning. ASEE ChE Summer School (July 29<sup>th</sup> - August 3<sup>rd</sup>, 2017)
- Bodnar, C.A.** Badges, Points and More...Engaging the Next Generation of Engineering Students. Olin University (April 14<sup>th</sup>, 2017).
- Bodnar, C.A.** Games: Ideas at Play. CIRTL Workshop, University of Pittsburgh. (July 20<sup>th</sup>, 2016)
- Bodnar, C.A.**,Vigeant, P. Ideas at Play, Rowan University. (June 9<sup>th</sup>, 2016)
- Bodnar, C.A.** Ideation Techniques for CHSS. CHSS Chairs' and Coordinators' Retreat, Rowan University. (June 8<sup>th</sup>, 2016)
- Bodnar, C.A.** Ideas at Play. KEEN Faculty Development Workshop, Bucknell University. (May 16<sup>th</sup>, 2016)
- Bodnar, C.A.**, Vitale, B. Ideas at Play. From Idea to Reality Right Now: Games, Math, Sex and Launch Pre-Conference Workshop Session. USASBE 2016 Annual Meeting, January 9-12th, 2016. San Diego, CA. (January 10<sup>th</sup>, 2016)
- Bodnar, C.** Badges, Points and More...Engaging the Next Generation of Chemical Engineering Students. University of Connecticut (April 2<sup>nd</sup>, 2015)
- Bodnar, C.** Learning through Play: Laying the Foundation for a Career in Engineering Education Research. Purdue University (February 10<sup>th</sup>, 2015)
- Bodnar, C.** Learning through Play: Laying the Foundation for a Career in Engineering Education Research. University of Louisville (February 3<sup>rd</sup>, 2015)
- Bodnar, C.** *Game On!* Utilization of Game Based Techniques in Engineering Education. Rose Hulman Institute of Technology (December 19<sup>th</sup>, 2014)
- Bodnar, C.** *Game On!* Utilization of Game Based Techniques in Engineering Education. University of Kentucky (September 10<sup>th</sup> and 11<sup>th</sup>, 2014)
- Bodnar, C.** Changing Directions: Evolution of a Career Over Time. Women in MSE Talk at Carnegie Mellon University (December 13<sup>th</sup>, 2013)
- Bodnar, C.A.** *Game On!* Utilization of Game Based Techniques in Engineering Education. IEEE WIE Talk at Carnegie Mellon University (April 3<sup>rd</sup>, 2013)

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CONFERENCE PRESENTATIONS

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- Butler, B.L., **Bodnar, C.A.** (2017). Establishing the Impact Gamified Homework Portals Can Have on Students' Academic Motivation. *ASEE 2017 Annual Conference and Exposition*, June 25-28, 2017. Columbus, Ohio.
- Mallouk, K., Kajfez, R.L., **Bodnar, C.A.**, Besterfield-Sacre, M.E., Mohammadi-Aragh, M.J. (2017). Strategies for Success and Sanity for Academic Mothers. *ASEE 2017 Annual Conference and Exposition*, June 25-28, 2017. Columbus, Ohio
- Kulhanek, A.J., **Bodnar, C.A.** (2017). Chemical Engineering Student Perceptions of Communication Development from Participation in Game-Based Activities. *ASEE 2017 Annual Conference and Exposition*, June 25-28, 2017. Columbus, Ohio.
- Faber, C., Smith-Orr, C., McCave, E., Strong, A., **Bodnar, C.**, Lee, W. (2017). Best Practices for Developing a Virtual Peer Mentoring Community. *ASEE 2017 Annual Conference and Exposition*, June 25-28, 2017. Columbus, Ohio.
- Kulhanek, A.J., Markovetz, M.R., Irgens, G.A., Swiecki, Z.L., Chesler, N.C., Shaffer, D.W., **Bodnar, C.A.** (2017). Assessing the Effectiveness of Shah's Innovation Metrics for Measuring Innovative Design within a Virtual Design Space. *ASEE 2017 Annual Conference and Exposition*, June 25-28, 2017. Columbus, Ohio.
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- Cole, D.G., Butler, B., **Bodnar, C.A.**, Clark, R.M., Davis, J., Congedo, T. (2017). Reinforcing the Fundamentals of Graduate Nuclear Engineering Through Game-Based Learning. *Conference on Nuclear Engineering and Training (CONTE'17)*, February 5-8, 2017. Jacksonville, Florida.
- Bodnar C.**, Clark, R., Davis, J., Congedo, T., Cole, D. (2016). Student Perspectives on Application of Game-Based Learning within a Graduate-Level Engineering Course. *Frontiers in Engineering Education Conference*, October 13-15<sup>th</sup>, 2016. Erie, Pennsylvania.
- Faber, C., Lee, W., McCave, E., Smith, C., Strong, A., **Bodnar, C.** (2016). Supporting Transitioning Engineering Education Researchers: Panel Session Reflecting on Shifts into a Diverse Set of Faculty Career Paths. *ASEE 2016 Annual Conference and Exposition*, June 26-29, 2016. New Orleans, Louisiana.
- Faber, C., **Bodnar, C.**, Strong, A., Lee, W., McCave, E., Smith, C. (2016). Narrating the experiences of first-year faculty in the Engineering Education Research community: Developing a qualitative, collaborative research methodology. *ASEE 2016 Annual Conference and Exposition*, June 26-29, 2016. New Orleans, Louisiana.
- Gulotta, J., Parisi, N., **Bodnar, C.A.** (2016). Leveling Up by Gamifying Freshman Engineering Clinic. *ASEE 2016 Annual Conference and Exposition*, June 26-29, 2016. New Orleans, Louisiana.
- Bodnar, C.A.**, Tranquilo, J., Matthew, V., Britos Cavagnaro, L., Monroe-White, T., Turrentine, A. (2016). Engaging in Play: Creating a Community of Practice to Support Game-Based Implementations for Teaching Innovation and Entrepreneurship. *NSF Envisioning the Future of Undergraduate STEM Education: Research and Practice Symposium*, April 27th-29th, 2016. Washington, D.C.
- Kulhanek, A., **Bodnar, C.A.** (2015). Utilization of a Game-Based Homework Platform to Personalize Learning within a Large Chemical Product Design Class. *AIChE 2015 Annual Meeting*, November 8-13, 2015. Salt Lake City, Utah.
- Eichelman, K., Clark, R.M., **Bodnar, C.A.** (2015). Assessing the Impact of Game Based Pedagogy on the Development of Communication Skills for Engineers. *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Farrell, S., Krause, S., **Bodnar, C.A.**, Ciston, S., Corneal, L., Eitel, R., Genau, A., Lepek, D., Nelson-Cheeseman, B., Ruzycski, N., Shih, J.D. (2015). A Virtual Community of Practice to Introduce Evidence-based Pedagogy in Chemical Engineering and Materials Courses. *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Felse, A., **Bodnar, C.A.**, High, K., Keith, J., Minerick, A. (2015). Diversity in Chemical Engineering Education: Status and Perspectives. *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Lasota, N., Parker R.S., **Bodnar, C.A.** (2015). Preparing Students for the Complexity of the Systems Medicine Field through a Research Experience For Undergraduates (REU). *ASEE 2015 Annual Conference and Exposition*, June 14-17, 2015. Seattle, Washington.
- Bodnar, C.A.**, Burkey, D.D., Enszer, J.A., Anastasio, D. (2014). Engineers at Play: Utilization of Games as Teaching Tools for Undergraduate Engineering Students. *AIChE 2014 Annual Meeting*, November 16-21, 2014. Atlanta, Georgia.
- Markovetz, M., Clark, R.M., **Bodnar, C.A.** (2014). Assessment of the Impact of Customer-Focused Activities Within a Virtual Internship Environment on Students' Product Design Process. *AIChE 2014 Annual Meeting*, November 16-21, 2014. Atlanta, Georgia.
- Rogy, K., **Bodnar, C.A.**, Clark, R.M. (2014). Examining the Entrepreneurial Mindset of Senior Chemical Engineering Students as a Result of Exposure to the Epistemic Game "Nephrotex". *ASEE 2014 Annual Conference and Exposition*, June 15-18, 2014. Indianapolis, Indiana.
- Volpatti, L., **Bodnar, C.A.**, Byland, L. (2014). Dealing with Harassment: A Workshop for Female Engineers. *ASEE 2014 Annual Conference and Exposition*, June 15-18, 2014. Indianapolis, Indiana.
- Bodnar, C.A.**, Clark, R.M., Besterfield-Sacre, M. (2014). Development and Assessment of an
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Innovation and Entrepreneurship Boot Camp for Sophomore Engineering Students. NCIIA 2014 OPEN Conference, March 21-22<sup>nd</sup>, 2014. San Jose, California.

**Bodnar, C.A.**, Britos Cavagnaro, L, Vigeant, P., Vitale, B. (2014). Ideas at Play: Epicenter and University of Pittsburgh Innovation and Entrepreneurship Workshop. NCIIA 2014 OPEN Conference, March 21-22<sup>nd</sup>, 2014. San Jose, California.

**Bodnar, C.** Innovation, Eship and Games? NCIIA Open, Washington, D.C. (March 22-23, 2013).

**Bodnar, C.**, Sen, A., Kallos, M.S., Behie, L.A., Petropavlovskaja, M., Rosenberg, L. Applying Stem Cell Bioengineering to the Production of Islet-Like Structures in Bioreactors. Keystone Symposia: Pancreatic Islets, Taos, New Mexico (February 23-28, 2006).

**Bodnar, C.** Expansion of Pancreatic Stem Cells in Suspension Bioreactors to Treat Diabetes. 2<sup>nd</sup> Annual Faculty of Engineering Graduate Student Research Conference, Calgary, Alberta (May 2-3, 2005).

**Bodnar, C.**, Sen, A., Kallos, M.S., Behie, L.A., Petropavlovskaja, M. and Rosenberg, L. Expansion of Human Islet-Like Structures: Gene Expression Profiling Provides Key Insights. Keystone Symposia: Molecular Regulation of Stem Cells, Banff, Alberta (February 10-15, 2005).

**Bodnar, C.**, Sen, A., Kallos, M.S., Behie, L.A., Petropavlovskaja, M. and Rosenberg, L. Expansion of Pancreatic Small Cells for Treatment of Diabetes. Stem Cell Network Annual General Meeting, Montreal, Quebec (November 3-5, 2004).

**Bodnar, C.**, Petropavlovskaja, M., Sen, A., Kallos, M.S., Behie, L.A., and Rosenberg, L. Expansion of Pancreatic Stem/Progenitor Cells in Suspension Bioreactors to Treat Diabetes. 5<sup>th</sup> Alberta Biomedical Engineering Conference, Banff, Alberta (October 22-24, 2004).

**Bodnar, C.**, Sen, A., Kallos, M.S., Behie, L.A., Petropavlovskaja, M. and Rosenberg, L. Expansion of Pancreatic Small Cells: A Pancreatic Stem Cell? 54<sup>th</sup> Chemical Engineering Conference, Calgary, Alberta (October 3-6, 2004).

**Bodnar, C.**, Sen, A., Kallos, M.S., and Behie, L.A. Large-Scale Expansion of Pancreatic Small Cells: A Pancreatic Stem Cell? 53<sup>rd</sup> Chemical Engineering Conference, Hamilton, Ontario (October 26-29, 2003).

**Bodnar, C.**, Chawla, M., Sen, A., Kallos, M.S. and Behie, L.A. Expansion of Pancreatic Progenitor Cells to Clinical Levels for Treatment of Diabetes. Stem Cell Network Annual General Meeting, Vancouver, British Columbia (September 18-20, 2003).

**Bodnar, C.**, Behie, L.A., Kallos, M.S. and Petersen, B.E. Large Scale Expansion of Liver Stem Cells. 52<sup>nd</sup> Chemical Engineering Conference, Vancouver, British Columbia (October 20-23, 2002).

**Bodnar, C.**, Kallos, M.S. and Behie, L.A. Expansion of Liver Stem Cells *In Vitro*. 3<sup>rd</sup> Alberta Biomedical Engineering Conference, Banff, Alberta (November 8-10, 2002).

**Bodnar, C.A.**, Sen, A., Kallos, M.S. and Behie, L.A. Scaling up the Production of Mammalian Neural Stem Cells in Bioreactors. 51st Canadian Chemical Engineering Conference, Halifax, Nova Scotia (Oct. 14-17, 2001).

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#### CONFERENCE POSTERS

Jahan, K., Farrell, S., **Bodnar, C.**, Tang, Y., Miller, D., Wenger, P., Bhavsar, M., Savelski, M., Slater, C.S., Lomboy, M., Ieva, K. (2017). Algae Grows the Future. *ASEE 2017 Annual Conference and Exposition*, June 25-28, 2017. Columbus, Ohio.

Markovetz, M.R., Clark, R.M., Swiecki, Z., Arastoopour, G., Chesler, N.C., Shaffer, D.W., **Bodnar, C.A.** (2016). Innovative Design within the Context of Virtual Internships: How Can it Be Defined and How is it Related to the Student Design Process? *ASEE 2016 Annual Conference and Exposition*, June 26-29, 2016. New Orleans, Louisiana.

Markovetz, M.R., Swiecki, Z., Arastoopour, G., Rogy, K.M., Clark, R.M., Chesler, N.C., Shaffer, D.W., **Bodnar, C.A.** (2014). Examining the Customizability of Virtual Internships: Changing Nephrotex to engage students in customer-focused design. *NSF Engineering Education Awardees' Meeting*, September 29-30, 2014. Arlington, Virginia.

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**Bodnar, C.A.**, Beckman, E., McCarthy, J.M., Little, S.R. (2014). Work in Progress: A Vision for the First “Product Innovation Sequence” for Chemical Engineers. *ASEE 2014 Annual Conference and Exposition*, June 15-18, 2014. Indianapolis, Indiana.

**Bodnar, C.A.** (2013). Blurring the Lines between Fiction and Reality: Utilization of Games to Achieve Personalized Learning Experiences within Engineering. *National Academy of Engineering Frontiers of Engineering Education Symposium*, October 27-30<sup>th</sup>, 2013. Irvine, California.

Schanck, J.F., **Bodnar, C.A.**, Raghavan, K., Bateman, D., Smith, N. (2012). If A Starfish Can Grow a New Arm, Why Can't I? Phase I/Phase II, Informal and Formal Educational Outreach in Regen Med. *NIH SciEd*, Washington, D.C. (May 13-16<sup>th</sup>, 2012).

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#### FUNDED GRANTS

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Starfish Schoolhouse; National Institutes of Health (NIH); \$46,820; 09/21/2011-02/28/2013; Collaborator.

Opening up the Doors to Innovation/E-ship through Game Based Content Modules; NCIIA; \$10,000; 03/01/2013 – 08/31/2015; PI

Building Entrepreneurship Capacity Through Engineering Grand Challenges; NCIIA; \$8,000; 03/01/2013 – 08/31/2014; PI

Virtual Internships: Development of Professional Identity within Large Enrollment Programs; University of Pittsburgh; \$25,000; 05/01/2013 – 04/30/2014; PI

Collaborative Research: Research Initiation Grant in Engineering Education: Development of Innovation Capacity in Engineering Students through Virtual Internships; National Science Foundation; \$125,000; 10/01/2013 – 09/30/2016; PI

REU Site: Enhancing Knowledge Integration Through Undergraduate Research – Particle-based Functional Materials for Energy, Sustainability and Biomedicine; National Science Foundation; \$383,431; 04/01/14 – 03/31/17; Co-PI with Joe McCarthy, PI

Preparation for Practice: Educating Engineers with the Communication Skills They Need to Know; Engineering Information Foundation; \$20,022; 07/01/2014-06/30/2015; PI

Curriculum Development in Nuclear Chemistry and Radiochemistry; Nuclear Regulatory Commission; \$200,000; 09/30/14 – 09/29/16; Co-PI with Dan Cole, PI

Collaborative Research: Ideas at Play: Inspiring Innovation and Creativity through Games and Moving Analogies; National Science Foundation; \$ 39,998; 03/01/2015 – 02/29/2016; PI

Algae Grows the Future; National Science Foundation; \$300,000; 09/01/16-08/31/2019; Co-PI with Kauser Jahan, PI

Collaborative Research: Supporting Agency Among Early Career Engineering Education Faculty in Diverse Institutional Contexts; National Science Foundation; \$56,503 (Rowan University); 06/01/17-05/31/2020; PI at Rowan University

Collaborative Research: Experiential Process Safety Training for Chemical Engineers; National Science Foundation; \$203,321 (Rowan University); 07/01/17-06/30/2020; PI at Rowan University

Understanding Entrepreneurial Mindset Development in First-Year Engineering and Business Students; Rowan University; \$10,000; 07/01/2017-06/30/2018; Co-PI

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## REVIEWER ACTIVITIES

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Advances in Health Science Education Journal (January 2011 – Present)  
Advances in Engineering Education Journal (September 2013 – Present)  
Journal of Engineering Education (July 2014 – Present)  
Journal of Engineering Entrepreneurship (September 2015 – Present)  
Journal of Small Business Management (November 2017 – Present)  
Education for Chemical Engineers (May 2016 – Present)  
NCIIA Course and Program Grants (December 2013 – Present)  
NSF Grant Reviewer (1 panel 2015, 1 panel 2016, 1 panel 2017)  
American Society for Engineering Education (ASEE) Chemical Engineering Division  
(October 2014 – Present) and Educational Research Methods Division (October 2014 – Present)  
Chemical Engineering Education (CEE) Journal (January 2016 – Present)

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## ACADEMIC SERVICE

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Serve as Co-Editor on Diversity Special Issue for Chemical Engineering Education (January 2017 – Present)  
Serving as Co-Chair of American Society for Engineering Education (ASEE) Chemical Engineering Division Diversity Committee (July 2014 – present)  
Serving as Secretary/Treasurer of American Society for Engineering Education (ASEE) Chemical Engineering Division (July 2015 – present)  
Serve as Chair of Undergraduate Program for College Wide Strategic Planning Committee (September 2016 – Present)  
Serve as Assistant Director for Faculty Programs in Rowan Center for Innovation and Entrepreneurship at Rowan University (March 2016 – Present)  
Assist with Rowan University Title IX Faculty Group (Fall 2015 – Present)  
Served on Henry M. Rowan College of Engineering Committee for Freshman and Sophomore Engineering Clinic Re-Design (October 2015 – June 2016)  
Served on Rowan University Committee for Online Evaluation of Teaching (January 2016 – May 2016)  
Faculty Co-Director for Graduate Women in Engineering Network (GWEN) (Fall 2013 – June 2015)  
Faculty Advisor for Innovation and Entrepreneurship Co-Curricular and Extra- Curricular Activities for Engineering Undergraduate Students (Summer 2013 – August 2015)  
Faculty Advisor for Chemical and Petroleum Engineering Undergraduate Students (~40 students) (Fall 2013 – May 2015)  
Assisted with Chemical and Petroleum Engineering Recruitment Presentations to High School Students and Freshman Engineers (Fall 2013 – November 2014)  
Assisted with Chemical and Petroleum Engineering Graduate Screenings (January 2015)  
Served on Chemical and Petroleum Engineering Qualifier Committee (July 2013 and March 2014)  
Served on Non-Tenure Stream Faculty Position Hiring Committee (January 2014 – August 2014)

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## ENGAGEMENT IN PROFESSIONAL DEVELOPMENT OPPORTUNITIES

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Self-Care for Educators: Two-Day Mindfulness Retreat. July 11<sup>th</sup>-12<sup>th</sup>, 2017.

STEM Central Short Course: Foundations of Culturally Responsive Evaluation. Three Part

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Series (June 22<sup>nd</sup>, 2016; July 27<sup>th</sup>, 2016; August 12<sup>th</sup>, 2016).

PEER Collaborative Workshop; West LaFayette, Indiana. June 18<sup>th</sup> – 19<sup>th</sup>, 2014; Seattle, Washington. June 17<sup>th</sup>-18<sup>th</sup>, 2015; New Orleans, Louisiana. June 29<sup>th</sup> - 30<sup>th</sup>, 2016.

American Society for Engineering Education (ASEE) Virtual Communities of Practice - Chemical Engineering and Material Sciences; October 2013- June 2014 (Met two to four times per month).

Using POGIL to Create Learning Activities; Pittsburgh, PA. November 5<sup>th</sup>, 2012.

Advanced National Effective Teaching Institute (NETI-2); Seattle, Washington; October 7-8, 2012.

How to Implement Clickers in Your Classroom; Pittsburgh, PA. September 5<sup>th</sup>, 2012.

Two Day Teaching Workshop; Pittsburgh, PA. August 31<sup>st</sup> and September 7<sup>th</sup>, 2012.

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## SKILLS AND ATTRIBUTES

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Laboratory:	<ul style="list-style-type: none"><li>• ELISA assays, BCA assays, immunocytochemistry analysis, aseptic technique, small scale bioreactor operation, small scale affinity chromatography operation, dialysis and concentration of proteins</li></ul>
Computers:	<ul style="list-style-type: none"><li>• Programming Languages: C++</li><li>• Software: Matlab, HYSYS, Microsoft Office</li></ul>
Communication:	<ul style="list-style-type: none"><li>• Technical writing and presentations</li><li>• Grant writing</li><li>• Bilingual – French language</li></ul>
Training:	<ul style="list-style-type: none"><li>• Knowledge of adult learning principles</li><li>• Understanding of needs assessment analysis</li><li>• Design and development of scientific and professional development workshops</li><li>• Instruction and facilitation of scientific and professional development workshops</li><li>• Level 1 – 3 Evaluation of scientific and professional development workshops, conferences, public outreach activities</li><li>• Knowledge of active learning, cooperative learning and project based learning teaching methodologies</li></ul>
Engineering Education Research:	<ul style="list-style-type: none"><li>• Qualitative Analysis (coding, coding frameworks, inter-rater reliability calculations)</li><li>• Quantitative Analysis (rubric scoring, survey design, statistical analysis, reliability analysis)</li></ul>

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## MEMBERSHIPS

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United States Association of Small Business and Entrepreneurship (USASBE)	<b>2016-Present</b>
American Institute of Chemical Engineers (AIChE)	<b>2012-2016</b>
American Society for Engineering Education (ASEE)	<b>2012-Present</b>

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American Chemical Society (ACS)	<b>2007-2015</b>
American Society for Training and Development (ASTD)	<b>2010-2013</b>
Canadian Society for Training and Development (CSTD)	<b>2009-Present</b>
Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA)- Engineer in Training	<b>2001-2009</b>
Stem Cell Network (SCN) – Trainee	<b>2003-2008</b>