CURRICULUM VITAE

Idalis Villanueva, Ph.D.

Utah State University
4160 Old Main Hill, Logan, UT 84322-1460
Email: villanui@gmail.com
Phone: (720)-234-0835

COUNTRY OF CITIZENSHIP: United States

EDUCATION

2009-2011	Post-Ph.D.	Analytical Cell Biology	National Institutes of Health
2007-2009	Ph.D.	Chemical and Biological Engineering	Univ. of Colorado-Boulder
2004-2007	M.S.	Chemical and Biological Engineering	Univ. of Colorado-Boulder
1998-2004	B.S.	Chemical Engineering	Univ. of Puerto Rico- Mayagüez

Dissertation Title: "The effects of biochemical and biomechanical cues on cartilage cells using synthetic, photopolymerizable hydrogels." Advisor: S.J. Bryant

FACULTY APPOINTMENTS

Utah State University, Logan, UT

2013-present Assistant Professor (tenure-track), Engineering Education

2014-present Adjunct Assistant Professor, Biological Engineering

University of Maryland, College Park, MD

2011-2013 Lecturer (non-tenure track), Bioengineering

CERTIFICATIONS AND PROFESSIONAL DEVELOPMENT

- Biometric Research and Education Credits, iMotions, 2017
- STEM Women of Color Leadership Academy; 8 continuing education credits, 2016
- Policy Analysis and Research Certificate, RAND Policy Institute (Santa Monica, California), 2015
- SolidWorks Computer Aided Design, Bridgerland Technical College, Logan, UT, 2014
- Scientist Teaching Science Certificate, National Institutes of Health (Office of Intramural Training & Education), 2010

U.S. PATENTS

- 12,616,113 (Filed 11/10/2009). Apparatus and Methods for Loading Soft Materials.

HONORS AND AWARDS

1. National Science Foundation CAREER Award, 2017 - 2021
2. Graduate Research Mentor of the Year, Engineering Education Department, Utah State University, 2018
3. Researcher of the Year, Engineering Education Department, Utah State University, 2018
4. American Association of Hispanics in Higher Education Fellow, 2018
5. Undergraduate Research Mentor of the Year, Engineering Education Department, Utah State University, 2017
6. Center for Women and Gender Faculty Fellow, 2016
7. Research Catalyst SEED Grant Faculty Fellow, 2015
8. RAND Policy Institute Faculty Fellow, 2015
9. RGS Washington D.C. Faculty Fellow, Utah State University, 2014

10. QEM/CAREER Workshop Faculty Fellow, National Science Foundation, 2014
11. Chesapeake Bay Project Faculty Fellow, University of Maryland-College Park, 2011-2013
12. Center for Teaching Excellence Faculty Fellow, University of Maryland-College Park, 2012-2013
13. SACNAS Leadership Institute Fellow, 2010
14. Academic Excellence in Science and Engineering Dean's Award, University of Puerto Rico at Mayagüez, 2004.
15. American Institute of Chemical Engineers Student Poster Competition, 2nd place, San Francisco, California, 2003.

REFEREED JOURNAL PUBLICATIONS

1. P. Vicioso, I. Villanueva, J. Husman, S. Lampkins, D. Christensen, and K. Youmans. Development of timestamping and filtering protocols for use of electrodermal data in motivational and educational research. *IEEE Transactions of Education, In Preparation (2018).*

2. J. Husman, I. Villanueva, S. Lampkins, D. Christensen, K. Youmans, and P. Vicioso. If I value the engineering test do I feel more or less shame when I fail?: The interaction between performance assessments, value, and academic emotions. *International Journal of Engineering Education, In Preparation (2018).*

3. L. Gelles, K. Youmans, I. Villanueva, & M. Di Stefano. Exploring the hidden curriculum of self-advocacy in engineering. *Engineering Studies, In Preparation, (2018).*

4. I. Villanueva, P. Vicioso, D. Christensen, J. Husman, R. Pekrun, T. Goetz, R. Azevedo, K. Youmans. Electrodermal data in motivational research: an introduction to signal processing approaches for different experimental designs. *Metacognition and Learning, In Preparation (2018).*

5.I. Villanueva, M. Di Stefano, L. Gelles, K. Youmans, & A. Hunt. Development and validation of a mixed methods vignette survey to explore hidden curriculum in engineering. *Journal of Engineering Education, Under Review, (2018).*

6. I. Villanueva, T. Carothers, M. Di Stefano, & M.T.H. Khan. "There is never a break": The hidden curriculum of professionalization for engineering faculty. *Education Sciences, Under Review (2018).*

7. I. Villanueva, M. Di Stefano, L. Gelles, P. Vicioso, S. Benson, & T. Carothers (2018). An intersectional and multi-modal approach to explore the verbal responses and electrodermal activities of science and engineering women to tokenism and research equity. *Contemporary Educational Psychology. Special Issue: Race-Reimagining Psychology Research: Investigating Constructs through the Lens of Race and Culture, Under Review.*

8. L. Gelles, I. Villanueva, M. Di Stefano. "Mentoring is ethical, right?": Women graduate students and faculty in science and engineering speak out. *International Journal of Gender, Science, and Technology, In Preparation, Special Issue in Gender and Intersectionality in Engineering, Under Review, (2018).*

9. J. Mejia, R. Revelo, and I. Villanueva. Critical theoretical frameworks in engineering education. *Engineering Studies, Accepted (2018).*

10. S. Jones, B. Campbell, and I. Villanueva. Heating up engineering education: an investigation of self-efficacy and emotions during engineering design learning activities. *International Journal of Engineering Education, Accepted (2018).*

11. I. Villanueva, B. Campbell, A. Raikes, S. Jones, and L. Putney. A multi-modal exploration of engineering students' emotions and electrodermal activity in design activities. *Journal of Engineering Education, In Press (2018).*

12. I. Villanueva, S. Jones, L. Putney, and B. Campbell. Puzzling the pieces: conceptual blocks of engineering student ideas in a service-learning project. *International Journal of Engineering Education,* 34, No. 1, pp. 56–68, 2018.

13. J. Uziak, R. Barlow, I. Villanueva, O. Lawanto, and K. Becker. Development of an online certificate program in engineering education. Special Issue in "Educating Engineering Educators: Keeping Pace with Scientific-Technological Change and Socio-Economic Development", *International Journal of Engineering Education, In Press (2018).*

14. I. Villanueva and M. Di Stefano. Narrative inquiry on the teaching of STEM to blind high school

students, special issue in "Teaching and Learning in STEM Education", *Education Sciences, 7 (89),1-16,* (2017).

15. O. Lawanto, J. Uziak, I. Villanueva, and M. Scheaffer. Continuing engineering education: A needs assessment for the introduction of a graduate certificate program. *Global Journal of Engineering Education, 19 (3), 186-193, (2017).*
16. I. Villanueva and L. Nadelson. Are we preparing the engineers of the future or the past? *International Journal of Engineering Education, 33 (2A), 639–652,* (2017).
17. I. Villanueva, M. Valladares, and W. Goodridge. Use of galvanic skin responses, salivary biomarkers, and self-reports to assess undergraduate student performance during a laboratory exam activity. *Journal of Visualized Experiments, 108,* e53255, doi:10.3791/53255 (2016).
18. B. Call, W. Goodridge, I. Villanueva, N. Wan, and K. Jordan. Utilizing electroencephalography measurements for comparison of task-specific neural efficiencies: spatial intelligence tasks. *Journal Visualized Experiments, 114,* e53327, doi:10.3791/53327 (2016).
19. N. Fang, O. Lawanto, W. Goodridge, I. Villanueva and K. Becker. A research experience for undergraduates (REU) site program on engineering education research. *International Journal of Engineering Education, 32 (5A),* 1836–1846, (2016).
20. N.B. Pivovarova, R.I. Stanika, G. Kazanina, I. Villanueva, and S.B. Andrews. The interactive roles of zinc and calcium in mitochondrial dysfunction and neurodegeneration. *Journal of Neurochemistry, 128 (4),* 592-602, (2014).
21. R.I. Stanika, I. Villanueva, G. Kazanina, N.B. Pivovarova and S.B. Andrews. Comparative impact of voltage-gated calcium channels and NMDA receptors on mitochondria-mediated neuronal injury. *Journal of Neuroscience, 32 (19), 6642-6650,* (2012).
22. I. Villanueva, S.K. Gladem, J. Kessler and S.J. Bryant. Dynamic loading stimulates chondrocyte biosynthesis when encapsulated in charged hydrogels prepared from poly(ethylene glycol) and chondroitin sulfate. *Matrix Biology, 29(1), 51-62,* (2010).
23. I. Villanueva, N.L. Bishop, and S.J. Bryant. Medium osmolarity and PCM development improves chondrocyte survival when photoencapsulated in PEG hydrogels at low densities. *Tissue Engineering-Part A, 15(10*), *3037-3048;doi:10.0189/ten.TEA.2009.001,* (2009).
24. I. Villanueva, C.A. Weigel, and S.J. Bryant. Cell-matrix interactions and dynamic mechanical loading influence chondrocyte gene expression and bioactivity in PEG-RGD hydrogels. *Acta Biomaterialia 5(8), 2832-2846, doi:10.1016/j.actbio.2009.05.039,* (2009).
25. I. Villanueva, B. Klement, D. von Deutsch, D.M. Klaus and S.J. Bryant. Crosslinking density alters early metabolic activities in chondrocytes encapsulated in poly(ethylene glycol) hydrogels and cultured in the rotating wall vessel. *Biotechnology and Bioengineering, 102 (4), 1242-1250, doi: 10.1002/bit.22134,* (2008).
26. S. J. Bryant, G. D. Nicodemus, I. Villanueva. Designing 3D photopolymer hydrogels to regulate biomechanical cues and tissue growth for cartilage tissue engineering. *Pharmaceutical Research, 25 (10), 2379-2386 (Invited Original Research Article), doi: 10.1007/s11095-008-9619-y,* (2008).
27. G.D. Nicodemus, I. Villanueva, and S.J. Bryant. Mechanical stimulation of TMJ condylar chondrocytes encapsulated in PEG hydrogels, *Journal of Biomedical Materials Research Part A 83 (2), 323-331, doi: 10.002/jbm.a.31251,* (2007).
28. I.Villanueva, D.S. Hauschulz, D. Mejic and S.J. Bryant, Static and dynamic compressive strains influence nitric oxide production and chondrocyte bioactivity when encapsulated in PEG hydrogels of different crosslinking densities, *Osteoarthritis and Cartilage Volume, 16 (8), 909-918; doi:10.1016/j.joca.2007.12.003,* (2008).
29. I.Villanueva, B. Klement, D. von Deutsch, and S.J. Bryant. Effects of simulated microgravity on nitric oxide production and proteoglycan synthesis by chondrocytes encapsulated in 3D PEG hydrogels, *Gravitational and Space Biology Bulletin, 20 (1),* (2006).

BOOK CHAPTER PUBLICATIONS

1. I. Villanueva. (2018). The bigger picture: My journey to a purposeful life and career in academia. *In* K. Woznack, A. Charlebois, R. Cole, C. Marzabadi, & G. Webster (Eds.), Mom the Chemistry Professor,

2nd edition, (pp. 485-499), Springer International Publishing, https://doi.org/10.1007/978-3-319-78972-9_1

REFEREED CONFERENCE PAPERS WITH PRESENTATIONS (presenter is underlined)

1. J. Husman, M.C. Graham, I. Villanueva, D. Christensen, K. Youmans, S. Lampkins, R. Wright, & B. Bermudez. (2018). Connecting to the future, feeling better in the present: academic achievement emotions, future oriented value, and arousal. American Educational Research Association, *Under Review*.

2. J. Husman, M.C. Graham, D. Christensen, I. Villanueva. (2018) Keeping your cool: exploring interactions between cortisol and emotional regulation on test performance. *Society for Personality and Social Psychology conference, Accepted.*

3. I. Villanueva, M. Di Stefano, L. Gelles, & K. Youmans. Exploring how engineering faculty, graduates, and undergraduates evaluate hidden curriculum via emotions and self-efficacy. (forthcoming, accepted; 2018) *Northern Rocky Mountain Educational Research Association Conference*, October 17-19. Salt Lake City, UT.

4. S. Jones, B. Campbell, & I. Villanueva. Perhaps engineering design is not so cold: an investigation of emotions and self-efficacy. forthcoming, accepted; 2018) *Northern Rocky Mountain Educational Research Association Conference*, October 17-19. Salt Lake City, UT.

5. D. Christensen, I. Villanueva, and S. Benson. Understanding first-year engineering students' perceived ideal learning environments. *World Engineering Education Forum, 2018, Under Review.*

6. K. Youmans, I. Villanueva, and J. Uziak. Global engineering leadership for societal impact: perspectives among engineering faculty world wide. *World Engineering Education Forum, 2018, Under Review.*

7. I. Villanueva, M. Di Stefano, L. Gelles, and K. Youmans. Hidden curriculum awareness: a qualitative comparison of Engineering faculty, graduate students, and undergraduates. *World Engineering Education Forum, 2018, Under Review.*

8. K. Youmans, I. Villanueva, L. Nadelson, J. Bouwma-Gearhart, A. Lenz, & S. Lanci. Engineering students' perceived value of makerspaces in relation to future career preparation. *International Symposium on Academic Makerspaces, 2018, Under Review*.

9. K. Youmans and I. Villanueva. Engineering and… : Women negotiating their future in the present. *Gender in STEM conference, 2018,* (forthcoming accepted).

10. I. Villanueva, W. Goodridge, and B. Call. An initial exploration of engineering students' emotive responses to mechanics and statics problems, *Proceedings of the American Society of Engineering Education Annual Conference and Exposition, Mechanical Engineering Division*, June 24-27, 2018, Salt Lake City, UT, Paper ID # 21881, p. 1-15.

11. I. Villanueva, L. Gelles, M. Di Stefano, B. Smith, R. Tull, S. Lord, L. Benson, A. Hunt, and D. Riley. What does hidden curriculum in engineering look like and how can it be explored? *Proceedings of the American Society of Engineering Education Annual Conference and Exposition, Minorities in Engineering Division*, June 24-27, 2018, Salt Lake City, UT, Paper ID # 21884, p. 1-16.

12. L. Gelles, I. Villanueva, and M. Di Stefano. Perceptions of ethical behavior in ethical mentoring relationships between women graduate students and faculty in science and Engineering, *Proceedings of the American Society of Engineering Education Annual Conference and Exposition, Engineering Ethics Division*, June 24-27, 2018, Salt Lake City, UT, Paper ID # 21889, p. 1-20. * selected Best Paper in the Ethics Division*

13. I. Villanueva, L. Nadelson, J. Bouwma-Gearhart, K. Youmans, S. Lanci, and A. Lenz. Exploring students' and instructors' perceptions of engineering: case studies of professionally-focused and career exploration courses, *Proceedings of the American Society of Engineering Education Annual Conference and Exposition, Liberal Education/Engineering Studies Division*, June 24-27, 2018, Salt Lake City, UT, Paper ID # 21891, p. 1-14.

14. S. Lanci, L. Nadelson, J. Bouwma-Gearhart, I. Villanueva, K. Youmans, & A. Lenz. Developing a measure of engineering students' makerspace learning, perceptions and interactions. *2018 Proceedings of the American Society of Engineering Education Annual Conference and Exposition*, June 24-27, 2018, Salt

Lake City, UT, Paper ID # 22089, p.1-12.

15. K. Youmans, I. Villanueva, S. Lanci, A. Lenz. J. Bouwma-Gearhart, and L. Nadelson. Makerspaces vs. engineering shops: Initial undergraduate student perspectives. *2018 IEEE Frontiers in Education, Accepted.*

16. I. Villanueva, J. Mejia, and R. Revelo. Uncovering the hidden factors that could compromise equitable and effective engineering education. *2018 IEEE Frontiers in Education Special Session*, Accepted.

17. R. Barlow, J. Uziak, I. Villanueva, O. Lawanto, and K. Becker. Work-In-Progress: Online engineering education certificate program, *2017 American Society of Engineering Education*, Paper ID # 18057, Columbus, OH.

18. R. Revelo, J.A. Mejia, and I. Villanueva. Work-In-Progress: Who are we? Beyond monolithic perspectives of Latinxs in engineering. *2017 American Society of Engineering Education, Paper ID # 18393*, Columbus, OH.

19. J.A. Mejia, R. Revelo, and I. Villanueva. Work-In-Progress: The Fibonacci sequence of critical theoretical frameworks: Breaking the code of engineering education research with underrepresented populations. *2017 American Society of Engineering Education, Paper ID # 18784*, Columbus, OH.

20. N. Fang, O. Lawanto, W.H. Goodridge, and I. Villanueva. Self-regulated learning in engineering education: a research experience for undergraduates (REU) site program. *2016 American Society of Engineering Education, Paper ID # 14431*, New Orleans, LA.

21. I. Villanueva. An exploration of Bloom's knowledge, skills, and affective-based goals in promoting development of freshmen engineering students' professional identities. *2015 FIE Conference, El Paso TX.*

22. W.H. Goodridge, I. Villanueva, M.M. Valladares, N. Wan, and C. Green. Cognitive strategies and misconceptions in introductory statics problems. *2014 FIE Conference under 'Cognitive strategies and misconceptions in introductory statics problems' session, Madrid, Spain*.

23. I. Villanueva, A. Raikes, N. Ruben, S. Schaefer, and J. Gunther. The use of physiological tools to identify changes in affective responses for graduate students recently admitted into a scientific discipline. *2014 FIE Conference under the 'Student Beliefs, Motivation, and Persistence Through the College Years' session, Madrid, Spain* (2014).

24. I. Villanueva, R. Manthe, and K. Knapstein. Development of a design- and project-based framework to include scientific reasoning in an undergraduate, introductory-level bioengineering laboratory course. *2013 American Society of Engineering Education, Proceeding Paper* #6347, *Atlanta, GA.*

REFEREED CONFERENCE PRESENTATIONS (presenter is underlined)

1. M. Di Stefano & I. Villanueva. (forthcoming, accepted). *Enhancing engineering understanding in K-5 TWI programs: Advocating for Latinx in engineering career.* To be presented at the Seventh International Conference on Immersion and Dual Language Education, Charlotte, NC, February 6-9, 2019.
2. M. Di Stefano & I. Villanueva. (forthcoming, accepted). *Promoting STEM education in dual language education programs.* To be presented at the Seventh International Conference on Immersion and Dual Language Education, Charlotte, NC, February 6-9, 2019.
3. M. Di Stefano and I. Villanueva. Promoting mathematics education in dual-language education programs in Spanish towards a growing understanding of engineering, *American Association of Hispanics in Higher Education*, Irvine, California, March 9, 2018.
4. M. Di Stefano and I. Villanueva. Hidden curriculum, language, and math: How to help emergent bilinguals to succeed in STEM, 22nd Annual Dual Language Conference *La Cosecha 2017*, in Albuquerque, NM, November 1-4, 2017.
5. L. Gelles, I. Villanueva and M. Di Stefano. Hidden players of ethical mentoring for women graduate students in science and engineering. *UNM Mentoring Institute*, October 22-26, 2017.
6. J. Husman, I.Villanueva, K. Cheng, & S. Lampkins. Electrodermal activity and salivary biomarkers for educational psychology research. *Southwest Consortium for Innovative Psychology for Education Conference*, October 19-20, 2017.
7. I. Villanueva, J. Husman, and K. Cheng. A motivated look into students' affective response to authentic examination experiences, *2017 European Association for Research and Learning and Instruction*

Conference Symposium: Understanding the mind through the body: physiology, emotions, and motivations in classroom, August 29 to September 2, 2017, Tampere, Finland.

8. I. Villanueva. Professional identity and culture: An exploration of the historical influences of students' perceptions about engineering, *2017 American Educational Research Association Symposium: How can Ed Psych can become more culturally relevant: Re-imaging traditional Ed psych concepts?,* April 28 to May 1, 2017, San Antonio, TX.

9. I. Villanueva and M. Di Stefano. Narrative ethnography on the engineering education of blind and visually impaired students, *2017 American Educational Research Association,* April 28 to May 1, 2017, San Antonio, TX.

10. I. Villanueva, B. Campbell, and S. Jones. Puzzling the pieces: Using heuristic cues for engineering student design idea generation, *2017 American Educational Research Association*, April 28 to May 1, 2017, San Antonio, TX.

9. B. Campbell, S. Jones, and I. Villanueva. The rational heart of engineering: influences of passive and active instruction on students' engagement, *2017 American Educational Research Association*, April 28 to May 1, 2017, San Antonio, TX.

10. S. Jones, B. Campbell, and I. Villanueva. Heating up engineering education: An investigation of self-efficacy and emotions during engineering design learning activities. *2016 American Educational Research Association Meeting.*

11. I. Villanueva, and L. Nadelson. Do they have the "knack"? Professional identity development of engineering students. *2016 American Educational Research Association Meeting.*

12. J.A. Mejia, R. Revelo, and I. Villanueva. Special Invited Session: Dismantling the educational pipeline: structural changes that impact Latin@ participation in engineering. *2016 American Educational Research Association Meeting, Special Session.*

13. B. Fronhofer, S. Schott, I. Villanueva, and M. Valladares. Design heuristics: A qualitative research study in engineering education. *2016 Emerging Researchers Conference, Washington, D.C.;* (*First Prize in Math and Science Education Oral Presentation Category).

14. J. Espinoza, I. Villanueva, W. Goodridge, and B. Call. Cognitive/emotional engagement and spatial performance during engineering examination activities. *Utah State 2016 Student Research Symposium*, Logan, UT, 2016.

15. W. Goodridge, I. Villanueva, N.J.A. Wan, B. Call, M. Valladares, B. Robinson, and K. Jordan. Neural efficiency similarities between engineering students solving statics and spatial ability problems, *44th Annual Meeting of the Society of Neuroscience*, Washington, D.C., 2014.

16. I. Villanueva, W. Goodridge, N.J.A. Wan, M. Valladares, B.S. Robinson, and K. Jordan. Hormonal and cognitive assessment of spatial ability and performance in engineering examination activities, *44th Annual meeting of the Society of Neuroscience*, Washington, D.C., 2014.

17. I.Villanueva, W. H. Goodridge, N.J.A. Wan, M.M. Valladares, B.S. Robinson, and K. Jordan. Hormonal and cognitive assessment of spatial ability and performance in engineering examination activities. *Society of Neuroscience Meeting, Washington, D.C., 2014.*

18. I. Villanueva, L.Abts, J. Turner, R. Reshetar, and E. Vaughn. Design and use of an 'Energy 101' model curriculum to teach general education undergraduates about energy sustainability through an engineering design lens, *2014 AERA conference, SIG-Science Teaching and Learning,* Philadelphia, PA, 2014.

19.N.B. Pivovarova, R.I. Stanika, I. Villanueva, S.B. Andrews. The interplay of zinc and calcium in neuronal injury, *2011 Society of Neuroscience*, Washington, D.C.

20. R.I. Stanika, I. Villanueva, N.B. Pivovarova, S.B. Andrews. Equivalent calcium loading via NMDA receptors or voltage-gated calcium channels induces similar toxicity in hippocampal neurons. *2010 Society for Neuroscience*, San Diego, CA.

21. I. Villanueva, N. L. Bishop, J.L. Christensen, S.J. Bryant. Effects of IL-1β and medium osmolarity on cell viability and nitrite production in chondrocyte-seeded poly(ethylene glycol) hydrogels, *55th Annual Orthopaedic Research Society Meeting*, Las Vegas, NV, 2009.

22. I. Villanueva, S.K. Gladem, S.J. Bryant. Effects of chondroitin sulfate incorporation on chondrocyte morphology and metabolism in mechanically stimulated poly(ethylene glycol) hydrogels. *55th Annual Orthopaedic Research Society Meeting*, Las Vegas, NV, 2009.

23. I. Villanueva, C.A. Weigel, S.J. Bryant, Using 3D PEG hydrogel models to elucidate the role

of RGD as a mechanoreceptor in chondrocytes. *2008 World Biomaterials Congress, Society of Biomaterials*, Amsterdam, The Netherlands, 2008.

24. I. Villanueva, C.Weigel, S.J. Bryant. Using poly(ethylene glycol) (PEG) hydrogels containing RGD- peptides as models to understand chondrocyte-matrix interactions under mechanical loading, *Midwest Connective Tissue Workshop,* Rush Medical School, Chicago, IL, 2007.

25. I. Villanueva, C.A. Weigel, and S.J. Bryant. PEG hydrogel models containing RGD-peptides influence chondrocyte response under mechanical compressional load, *2007 NAFP, JPFP, CIPA Symposium*, Cleveland, Ohio, 2007.

26. I. Villanueva, C.Weigel, S.J. Bryant. Using poly(ethylene glycol) (PEG) hydrogels containing RGD- peptides as models to understand chondrocyte-matrix interactions under mechanical loading, *Midwest Connective Tissue Workshop*, Rush University Medical School, Chicago, IL, 2007.

27. I. Villanueva and S.J. Bryant. Chondrocyte metabolism and nitric oxide production in mechanically stimulated PEG hydrogel constructs. *Society of Bioengineering's 2nd International Conference on Bioengineering and Nanotechnology,* Santa Barbara, CA, 2006.

28. I. Villanueva and S.J. Bryant. Mechanically loaded photopolymerized hydrogels as 3D models to probe mechanotransduction pathways in chondrocytes, *World Congress on Biomechanics*, Munich, Germany, 2006.

29. I. Villanueva, H.E. Davis, and S.J. Bryant. Crosslinking density influences nitric oxide production in chondrocytes seeded in PEG hydrogels under dynamic loading, *Regenerate World Congress on Tissue Engineering and Regenerative Medicine*, Pittsburgh, PA, 2006.

30. I. Villanueva, B. Klement, D. von Deutsch, and S.J. Bryant. Effects of simulated microgravity on nitric oxide production and proteoglycan synthesis by chondrocytes encapsulated in 3D PEG hydrogels, *American Society for Gravitational and Space Biology Annual Meeting*, Arlington, VA, 2006.

31. I. Villanueva and S.J. Bryant. Nitric oxide production in mechanically stimulated chondrocytes encapsulated in PEG hydrogels, *Dental and Craniofacial Research Conference, University of Colorado-Health Sciences Center*, Aurora, Colorado, 2006.

NON-REFEREED CONFERENCE PRESENTATIONS (presenter is underlined)

1. L. Gelles and I. Villanueva. Integrating sustainability into an "Introduction to engineering" course. planetary thinking in the curriculum, *Utah State University Sustainability Council Meeting*, April 21, 2016.
2. I. Villanueva. Broadening the landscape in engineering education. *Society of Hispanic Professional Engineers, Invited Speaker, 2015.*
3. I. Villanueva and A. Cunningham. It is not what you see but what you know: Creating maker spaces for blind and visually impaired students learning about engineering drawing. *Maker Innovation Conference, Utah State University, 2015.*
4. I. Villanueva. Help, instructor overload! The pros and cons of distance education and IVC formats for instruction in an engineering graphics/design computer laboratory course. *Empowering Teaching Excellence Conference, Utah State University, 2015.*
5. L. Abts and I. Villanueva. Energy 101 Development. *Department of Energy Webinar*. 2013.
6. I. Villanueva, C.A. Weigel, S.J. Bryant. RGD's role as a mechanotransducer in chondrocytes embedded in 3D poly(ethylene glycol) hydrogels, *NIH Third Annual Graduate Student Research Festival*, Bethesda, MD, 2008.
7. I.Villanueva, C.A. Weigel, and S.J.Bryant. Poly(ethylene glycol) hydrogel models containing RGD-peptides to understand chondrocyte-matrix interactions under mechanical load, *University of Colorado Health Science Center Research Day*, Aurora, Colorado, 2008.
8. I. Villanueva, C.A. Weigel, and S.J. Bryant. Chondrocyte-matrix interaction in PEG hydrogels under dynamic load, *StARS Symposium*, University of Colorado-Boulder, Boulder, Colorado, 2007.
9. I.Villanueva, C.A. Weigel, J. Kessler, and S.J. Bryant. Designing 3D photopolymerized PEG hydrogels to study chondrocyte response, *Photopolymerization Fundamentals Conference*, Breckenridge, Colorado, 2007.

INVITED TALKS/PANELS (presenter is underlined)

1. I. Villanueva. The iceberg of assumptions: exploring hidden curriculum in engineering education, University of Florida, Invited Speaker, To present in September 2018.
2. I. Villanueva and M. Di Stefano. Exploring assumptions about engineering education: A new workshop to improve pedagogy for inclusive learning environments, *University of Chicago-Illinois*, May 17, 2018.
3. D. Ireland, W. Lee, I. Villanueva, and S. Jordan. Culturally responsive education, Why Bother?, CONeCD Conference Plenary Session, May 1, 2018, Crystal City, VA.
4. I. Villanueva. Knocking down assumptions in engineering education, *University of California-San Diego*, Invited Speaker, March 12, 2018.
5. I. Villanueva. Utah Valley University, NSF Panel on Grant Writing, March 1, 2018.
6. I. Villanueva. An initial exploration of hidden curriculum in engineering, *Purdue University Engineering Education Department Research Seminar*, January 20, 2018, Invited Speaker.
7. I. Villanueva. Engineering professional identity development, Texas State University Rising Stars Meeting, January 2017, Invited Speaker.
8. I. Villanueva. Non-academic research careers. National Institutes of Health Career Symposium, May 2012.
9. I. Villanueva. Puerto Rico Space Grant Consortium External Advisory Board, University of Humacäo, Puerto Rico- January 2008.
10. I. Villanueva. Diversity in STEM. *NASA STS-116 space shuttle launch meeting*, Kennedy Space Center, Florida- December 2006.

FUNDING

Current

1. *(PI)* National Science Foundation, *NSF BPE CAREER: Advocating for Engineering through Hidden Curricula: A Multi-Institutional Mixed Method Approach*; Duration: January 15, 2017 to December 30, 2021; PI: Idalis Villanueva, Total Amount: $625,649; Villanueva Share 100%.
2. *(PI)* National Science Foundation, EHR CORE, *Collaborative Research: Getting Real about engineering: an exploration of the emotional and motivational components of learning in the engineering classroom*; Duration: June 1, 2017 to August 31, 2020; PI: Idalis Villanueva; Total Amount: $230,235; Villanueva Share: 100%
3. (*co-PI*) National Science Foundation, Research in the Formation of Engineers, *Collaborative Research: The Making of Engineers: Influence of Makerspaces on the Preparation of Undergraduates as Engineers*; Duration: September 1, 2017 to August 31, 2020; Total Amount: $99,700; Villanueva Share: 100%

Former

1. (*PI*) Steelcase Education/Utah State University: Strong and Healthy Identities in Engineering (SHINE) Center; Duration: January 1, 2017 to December 30, 2017; PI: Idalis Villanueva; Total Amount: $75,000; Villanueva Share: 75%.
2. (*PI*) Utah State University Center for Women and Gender Studies: Women graduate students and faculty in science and engineering: a case study on ethnical mentoring; Duration: July 1, 2016 to June 30, 2017; PI: Idalis Villanueva; Total Amount: $13,000; Villanueva Share: 100%.
3. (*PI*) Utah State University Research Catalyst SEED: Design Heuristics to Correlate Self-Efficacy and Transfer of Learning in Engineering Students; Duration: July 1, 2014 to June 30, 2015; PI: Idalis Villanueva, co-PIs: Sydney Schaefer and Suzanne Jones; Total Amount: $19,932; Villanueva Share: 55%.
4. (*PI*) University System of Maryland Carnegie Course Re-design Grant: Biology for Engineers Course Redesign; Duration: August 2013-August 2015; PI: Idalis Villanueva and co-PI: Ganesh Sriram, Ph.D., Adam Hsieh, Ph.D.; Total Amount: $40,000
5. (*PI*) College for Teaching Excellence Learning Enhancement Mini-Grant, University of Maryland-College Park, Duration: May 2012-May 2013, Amount: $12,000

Pending

1. (*PI*) National Science Foundation, DRK-12: Teaching: Enhancing Engineering Understanding in K-5 Bilingual Programs: Advocating for Latinx in Engineering Careers, Duration: August 1, 2018 to July 31, 2018, $447,006, Villanueva Share: 33%; * *under negotiation* *
2. *(PI)* National Science Foundation, Research Initiation: Collaborative Research: Understanding pedagogically motivating factors for under-represented and non-traditional students in an engineering classroom, Duration: September 1, 2018 to August 31, 2018, $199,891, Villanueva Share: 9%; * *under negotiation* *

CONSULTING/PROGRAM EVALUATION

Current

1. CAREER: Examining factors that foster low-income Latino middle school students' engineering design thinking in literacy-infused technology and engineering classrooms; PI: Amy Alexandra Wilson; Advisory Board Member: Idalis Villanueva; January 1, 2016 to January 1, 2021, Total Amount: $802,000; Villanueva Share: 1%.
2. Designing Tactile Picture Books: Critical making in libraries to broaden participation in STEM education and careers; PI: Tom Yeh, co-PI: Stacey Forsyth; Advisory Board Member: Idalis Villanueva; September 15, 2016 to August 31, 2019; Total Amount: $1,199,833; Villanueva Share: 1%

Former

3. National Center for Blind Youth in Science Full-Scale Development Project, NSF Advancing Informal STEM Learning, PI: Mark Riccobono; co-PI: Christine Reich; Curricular Developer: Idalis Villanueva; Duration: September 1, 2013-August 30, 2016, Total Amount: $842,209; Villanueva Share: 3%.

SCHOLARSHIPS/ASSISTANTSHIPS

1. U.S. Department of Education Graduate Assistantship in Areas of National Need, University of Colorado-Boulder, Duration: July 2006-December 2008, Amount: $12,000
2. NASA Harriett G. Jenkins Pre-doctoral Fellowship, University of Colorado-Boulder, Duration: July 2005-October 2008, Amount: $66,000 over 3 years
3. Colorado Diversity Initiative Graduate Student Travel Grant, University of Colorado-Boulder, Duration: December 2006, December 2007, March 2008; Amount: $3,000
4. Alliance for Graduate Education and the Professoriate Travel Grant, University of Colorado- Boulder, Duration: July 2007, Amount: $1,500
4. Mini NASA Research Award through the Harriett G. Jenkins Fellowship, University of Colorado-Boulder, Duration: June 2006-August 2006, Amount: $7,000
5. Puerto Rico NASA Space Grant for Research in Engineering and Science, University of Puerto Rico-Mayaguez, Duration: August 2003-May 2004, Amount: $5,000
6. HESS Foundation Scholarship for Academic Excellence, University of Puerto Rico- Mayaguez, Duration: December 2002, Amount: $500.

PEDAGOGICAL METHODS AND FORMATS

1. Distance Education (broadcast and interactive video conferencing using Canvas as the learning management system)
2. Flipped Classroom (using Panopto, Screen Cast-o-Matic, Camtasia)
3. Face-to-Face Active and Service Learning (using i-clicker and e-portfolio using Canvas and Blackboard as the learning management systems)
4. Project- and Problem-Based Learning (using engineering design models and e-portfolios)

COURSES TAUGHT

1. *Introduction to Engineering*, Utah State University, Engineering Education, Fall 2016-present
2. *Qualitative Methods in Engineering Education*, Utah State University, Engineering Education, Spring 2016, Spring 2018, to be taught again in Summer 2018
3. *Developing an Online Educational Curriculum*, Utah State University, Engineering Education, Summer

2015, Spring 2017, to be taught again in Summer 2018

4. *Engineering Graphics*, Utah State University, Mechanical Engineering, Spring 2014 to Spring 2016 (including summers)
5. *Biology for Engineers*, University of Maryland-College Park, Fischell Department of Bioengineering, Fall 2011-Spring 2013 (including summers)
6. *Biology for Engineers Laboratory*, University of Maryland-College Park, Fischell Department of Bioengineering, Fall 2011-2013 (including summers)
7. *Designing a Sustainable World*, University of Maryland-College Park, Fischell Department of Bioengineering, Spring 2013
8. *Tissue Engineering*, University of Maryland-College Park, Fischell Department of Bioengineering, Spring 2012
9. *Science Writing*, Office of Intramural Training and Education, National Institutes of Health, Summer 2008
10. *Material and Energy Balance*, University of Colorado-Boulder, Chemical and Biological Engineering, Fall 2006 (Teaching Assistant)
11. *General Chemistry Laboratory*, University of Colorado-Boulder, Chemical and Biological Engineering, Spring 2005 (Teaching Assistant)

SERVICE

Professional

1. NSF/ASEE Engineering and Education Centers Grantees Conference Planning Committee, October 2016 to October 2017
2. Council of Undergraduate Research Councilor, Engineering Division, June 2017 to present
3. Society of Hispanic Professional Engineers Faculty Institute Planning Committee, July 2015 – present:
    a. Development of hidden curriculum seminar for 75 engineering faculty across the nation and upcoming development of an effective training and literacy in engineering session hosting 75 faculty in the 2017 Kansas City Conference.
    b. Development of active learning/flipped classroom seminar for 70 engineering faculty across the nation in the 2016 Seattle Conference.
4. Invited Expert Faculty, NSF PRIME Workshop for the Engineering Design Process Portfolio Scoring Rubric, January 2015 and October 2013:
    a. Assessed EDPPSR rubrics for Project Lead the Way along with 10 experts to identify examples appropriate for each category of the rubric elements and refine language of the rubric
5. Invited Proposal Reviewer, National Science Foundation, February 2014- present
6. Vice Chair for the IEEE Education Society, January 2014-May 2015:
    a. Assist the president in the development and refinement of IEEE educational guidelines; Ensure that all members are completed their designated tasks
7. Invited Journal Reviewer, Journal of Engineering Education, November 2013- present

Institutional

1. College of Dean Search and Interview Committee, Utah State University, November 2017-April 2018
2. SHPE Student Chapter Faculty Representative, November 2016 to present
3. Engineering Education Department Graduate Online Certificate Committee, January 2017- present.
4. Empowering Teaching Excellence Committee, Utah State University, August 2015-2017:
    a. Helping to develop faculty training seminars through the Center of Innovative Design and Instruction around pedagogical strategies and inclusive learning environments
5. Recruited and Hosted for special seminars from engineering education experts on stereotype threat (Dr. Michelle Camacho and Dr. Susan Lord) in April 22, 2016 and Broadening Participation in Engineering (Dr. James Moore, NSF BPE program officer at the time) in January 30, 2017.
6. Invited Panelist, Engineering Education graduate research seminar, Utah State, Spring 2014 and Spring 2015:
    a. Spoke to 20 graduate students about how to properly interview for a faculty position, finding their career paths after their Ph.D. and developed a handout to help guide them through the

process
   b. Participated in a panel about the process of campus interviews when looking for a faculty position
7. Recruiter, Engineering Education Department, Utah State, 2013 and 2015-:
   a. Recruited for Weber State Career Fair to find potential graduate student candidates into the Engineering Education graduate program
   b. Recruited for the Engineering Education Department at the 2015 SACNAS Conference
8. STEM Recruitment Specialist, Montgomery County College Preparation and Scholarship Fair, Universities of Shady Grove, April 21, 2012:
   a. Mentored parents, students, and interested public in opportunities in STEM
9. Postdoctoral Professional Development Intern, National Institutes of Health, Office of Intramural Training and Education: July to December 2010
   a. Assisted with the development of materials and slides for the CAREERS IN SCIENCE EDUCATION AND OUTREACH: A "HOW TO" WORKSHOP for postdoctoral students
10. Activities Coordinator, National Institutes of Health, Office of Intramural Training and Education, April 2010-:
   a. Designed 3 modules for the National Institute of Health "Take Your Child to Work Day" workshop entitled "Chemistry, Chemicals, and You" for 75 children ages 5-11; Managed 3 groups of volunteers that aided in each of the modules.
11. Recruiter, University of Colorado at Boulder, Colorado Diversity Initiative, October 2008 and November 2007:
   a. Staffed orientation booths in the 2008 Advancing Hispanic/Chicano and Native Americans in Science (SACNAS) and the 2007 Annual Biomedical Research Conference for Minority Students (ABRCMS) conferences where interested undergraduate students can obtain information about grants and research opportunities within the University of Colorado-Boulder; Collected resumes and followed-up with information for prospective applicants.

Community

1. Invited Professional Development Specialist, SACNAS Conference, October 2014:
   a. Co-developed a professional development session for STEM graduate students
2. Moderator, Summer Success Institute, University of Maryland Baltimore County, August 2012:
   a. Moderated mentoring session for PROMISE program summer success institute where cohorts of graduate students, faculty members, and various personnel from industry, government, and institutions meet and discuss their success stories within their profession
3. Moderator, Summer Success Institute, University of Maryland Baltimore County, August 2011:
   a. Moderated mentoring session for PROMISE program summer success institute where cohorts of graduate students, faculty members, and various personnel from industry, government, and institutions meet and discuss their success stories within their profession
4. Postdoctoral AGEP PROMISE Program Co-developer/Mentor, University of Maryland Baltimore County, August 2009-July 2011:
   a. Aided in the development of the first postdoctoral program targeted at underrepresented minorities in the University of Maryland Baltimore County
   b. Mentored graduated students for the Rocky Gap Retreat, a program designed to help graduate students complete their thesis dissertations
   c. Assisted with the evaluation of the Rocky Gap Retreat and recommended potential changes towards the 2010 program.
5. Graduate Student Mentor, University of Colorado at Boulder June to August 2009 and June to August 2008:
   a. Mentored 25 undergraduate students selected to participate in the Summer Multicultural Access to Research Training (SMART) in the University of Colorado-Boulder; Supported several workshops related to scientific proposal and abstract writing as well as poster and oral presentation.

ACTIVE PROFESSIONAL MEMBERSHIPS

1. American Society of Engineering Education (ASEE)
2. American Educational Research Association (AERA)
3. American Association of Hispanics in Higher Education (AAHHE)
4. American Society of Higher Education (ASHE)
5. Society of Hispanic Professional Engineers (SHPE)
6. IEEE Frontier in Education (IEEE FIE)

POSTDOCTORAL RESEARCH ASSISTANT MENTORED

1. Marialuisa Di Stefano, *Postdoctoral Fellow of STEM Policy, Diversity, and Inclusion*, August 2017-present under the NSF CAREER award.
2. Md Tarique Hasan Khan, *Postdoctoral Fellow of Signal Processing and Automation*, to start in May 2018 under the NSF EHR CORE proposal.

GRADUATE RESEARCH ASSISTANTS

1. Laura Ann Gelles, Doctoral Candidate, January 2015-present
   - *First Graduate Student in Engineering Education to complete her qualifying exams without any required changes, February 2018*
   - *Engineering Education Department Graduate Researcher of the Year Award Nominee, April 2018*
   - *Utah State University, College of Engineering, Graduate Teacher of the Year Award, May 2017*
   - *Utah State University Robin's Award Nominee, Graduate Teacher of the Year, May 2017*
2. Darcie Christensen, Graduate Research Assistant, August 2017-present
   - *NSF GRFP Fellow and First Graduate Student to Receive this Award in Engineering Education Department at Utah State University*, April 2018 to present, acceptance rate: 10% ($50,000 for 3 years)
   - *Tau Beta Pi Fellow*, Utah State University, April 2018 to present, acceptance rate: 6.7%, ($10,000 for 1 year)
   - *Utah State University Robin's Undergraduate Student of the Year Recipient*, May 2017
3. Katherine Youmans, Graduate Research Assistant, August 2017-present
4. Paul Vicioso, Part-Time Graduate Research Assistant, August 2015-present
5. Marialuisa Di Stefano, Part-Time Graduate Research Assistant, August 2016-July 2017
6. Maria Valladares, Graduate Research Assistant, January 2014-December 2015, ABD

ADDITIONAL GRADUATE STUDENTS MENTORED OR IN COMMITTEES

1. Jon Thorne, Graduate Teaching Assistant, Mechanical Engineering Department, Spring 2016
2. Yushi Yanagita, Graduate Teaching Assistant, Mechanical Engineering Department, Spring 2016
3. Moe Tajvidi, Graduate Dissertation Committee Member, Graduated in May 2017
4. Stacie Gregory, Graduate Dissertation Committee Member, Graduated in May 2016
5. Angela Minichiello, Graduate Dissertation Committee Member, Graduated in May 2016
6. Adam Raikes, External Graduate Dissertation Committee Member in Health, Physical Education and Recreation Department, Utah State, Graduated in May 2016
7. Joel Mejia, Graduate Dissertation Committee Member, Graduated in May 2014
8. Michael Liu, Graduate Dissertation Committee Member, Defending in May 2018
9. Lilian Almeida, Graduate Dissertation Committee Member, Defending in December 2018
10. Ivan Quezada, External Graduate Dissertation Committee Member in Civil Engineering, Utah State, Defending in May 2018
11. Ryan Barlow, Graduate Dissertation Committee Member, Defending in December 2018.
12. Zahra Atiq, External Graduate Dissertation Committee Member in Engineering Education, Purdue University, Defending in May 2019

UNDERGRADUATE STUDENT RESEARCH ASSISTANTS AND STUDENTS MENTORED

1. Ruth Campos, July 2018 – present
   - *Undergraduate Research Assistant, Engineering Education Department, Utah State*
2. Lucy Campos, July 2018 – present
   - *Undergraduate Research Assistant, Engineering Education Department, Utah State*
3. Paola Muñoz, January 2018- present
   - *Undergraduate Research Assistant, Engineering Education Department, Utah State*
4. Taylor Kesler, May 2017-May 2018
   - *Undergraduate Teacher Fellow of the Year Nominee*, Utah State University, May 2018
5. Jorge Espinoza, August 2014-July 2015
   - *Engineering Undergraduate Research Fellow, College of Engineering, Utah State*
   - *Selected to present findings in 2016 Utah State Student Research Symposium*
6. Darcie Christensen, August 2016-July 2017
   - *Undergraduate Research Assistant, Engineering Education Department, Utah State*
   - *Utah State University Robin's Award Winner, Undergraduate Student of the Year partly under my mentorship*
7. Bethany Fronhofer, Summer 2015
   - *Undergraduate REU student in Engineering Education Department at Utah State*
   - *2015 Emerging Researcher Conference, First Place Winner for Math and Science Education Division for her research under my mentorship*
8. Sarah Schott, Summer 2015
   - *Undergraduate REU student in Engineering Education Department at Utah State*
9. Brendan Teoh, Spring 2016
   - *Recognized as distinguished undergraduate teaching fellow for his work in my course under my mentorship in an article about the Undergraduate Teaching Fellow Program at Utah State University*
10. Jose Campos, Spring 2016
    - *Undergraduate Teaching Fellow, Mechanical Engineering and Engineering Education Department, Utah State University*
    - *2016 Outstanding undergraduate teaching fellow winner, Utah State University, College of Engineering*
11. Whit Bundy, Spring 2016
    - *Undergraduate Teaching Fellow, Mechanical Engineering and Engineering Education Department, Utah State University*
12. Chris Walker, Spring 2016
    - *Undergraduate Teaching Fellow, Mechanical Engineering and Engineering Education Department, Utah State University*
13. Addison Devitry-Smith, August 2015-Spring 2016
    - *Undergraduate Teaching Fellow, Mechanical Engineering and Engineering Education Department, Utah State University*
    - *Undergraduate Research Assistant, selected to present our work in the National Science Teachers Association Conference*
14. Camille Bruneel, January 2014 and Spring 2016
    - *Undergraduate Teaching Fellow, Mechanical Engineering and Engineering Education Department, Utah State University*
15. Andrew Latham, Fall 2014
    - *Undergraduate Teaching Fellow, Mechanical Engineering and Engineering Education Department, Utah State University*
    - *2015 Outstanding undergraduate teaching fellow winner, Utah State University, College of Engineering*