

CURRICULUM VITAE

(May 18, 2022)

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Background

1. Education

2006	B.S.	Chemical Engineering	University of Massachusetts – Amherst, School of Engineering, Amherst, MA
2012	Ph.D.	Chemical and Biomolecular Engineering	Johns Hopkins University, Baltimore, MD Thesis Title: “Multi-targeted therapeutics for cartilage regeneration,” with Jennifer H. Elisseeff
2012	Postdoctoral Associate	Biomedical Engineering	Johns Hopkins University, Baltimore, MD with Jennifer H. Elisseeff
2016	Postdoctoral Fellow	Biomedical Engineering	Tufts University, Medford, MA with David L. Kaplan

2. Work Experience

Current Appointments

2016 – Present **Assistant Professor**, Department of Biomedical Engineering, WPI

2016 – Present **Assistant Professor (Collaborative)**, Department of Chemical Engineering, WPI

Previous Experience

2012 – 2016 **Postdoctoral Research Fellow**, Department of Biomedical Engineering, Tufts University, Medford, MA

2012 **Postdoctoral Research Scholar**, Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD

2006 – 2012 **Research Assistant**, Department of Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, MD

2005 **Undergraduate Research Assistant**, Department of Biomedical Engineering, Worcester Polytechnic Institute, Worcester, MA

2004 **Undergraduate Research Assistant**, Department of Chemical Engineering, University of Massachusetts – Amherst, Amherst, MA

Teaching

TEACHING HIGHLIGHTS

- **Four (4) courses taught at WPI; 2 new courses** developed in bioprocess engineering and for graduate professional development
- **Two (2) oral presentations on teaching innovation** through active learning modules at local meetings
- Advised **13 senior capstone design, Major Qualifying Projects (MQP)**, teams (50 students) resulting in departmental awards and student invention disclosures
- Advised **18 undergraduate independent studies** for credit on projects related to my research program resulting in 3 students being listed as co-authors on peer-reviewed research publications; advised 3 NSF-funded Research Experience for Undergraduate students; 13 abstracts presented at national meetings led or co-authored by undergraduate students
- 2021 BME Department MQP Excellence Award
- **2020 WPI Trustees Award for Outstanding Academic Advising**; served as faculty advisor to ~35 students each year for the past four years; faculty advisor to all transfer students declaring the BME major
- **2019-2020 WPI BME Department's Teacher of the Year Award**
- **2 PhD and 2 MS** dissertation and thesis students advised and completed at WPI to date; 4 PhD students in training; trainees employed in industry upon graduation
- **Led revisions** to the BME undergraduate distribution requirements and tracking documentation

3. Teaching Experience

2016 – Present	Assistant Professor , Department of Biomedical Engineering, WPI, Worcester, MA
2015	Instructor , Department of Biomedical Engineering, Tufts University, Medford, MA Biomaterials and Regenerative Medicine (BME 153)
2007 – 2009	Assistant Graduate Teaching Assistant , Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD Cell and Tissue Engineering Lab (EN.580.452, 2-week module)
2007 – 2008	Graduate Teaching Assistant , Department of Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, MD Transport I (EN.540.303) Kinetic Processes (EN.540.301)

4. Teaching Innovations at WPI

Courses Developed at WPI

1. **BME2610. Introduction to Bioprocess Engineering.** A new course introduced in Fall 2018 on material and energy balances focused on biomedical processes. It is designed to fulfill a need for fundamental understanding of macroscale transport prior to taking advanced class in fluid mechanics, mass transfer, heat transfer, and thermodynamics. The fundamentals of bioprocess engineering calculations and data analysis, and bioengineering processes and process variables are covered. Students learn to identify a system, define boundary conditions, and characterize the system processes to generate appropriate material and energy balances using the principles of conservation of mass and energy. Fundamentals and applications in the human body and biomanufacturing are examined. Specific examples balances on organs, organ assistive devices, bioprocess instrumentation, individual or groups of cells, cell culture bioreactors, tissue engineered scaffolds, and drug delivery systems.
2. **BME 4831. Drug Delivery.** In 2017, I substantially redesigned the BME undergraduate course in Drug Delivery and continued to redevelop this course for the 2018 offering based on student feedback, course outcomes, and general course perception during the term. This course is intended to serve the subset of BME students interested in drug delivery, biomaterials and pharmaceutical sciences. This course provides

students with an in depth understanding of drug delivery systems that will benefit individuals planning to pursue bioengineering careers as formulation scientist, medical device designers or graduate studies in biomaterials and drug delivery research. Lecture topics include Drug Administration, Diffusion, and Drug Dispersions, Random Walk, Fick's Law, Diffusion in Biological Systems, Pharmacokinetics/pharmacodynamics, Drug Modifications, Degradable and Nondegradable polymers, Antibody Therapeutics, Particles and Nanocarriers, Reservoir- and Matrix-based Delivery systems, Oligonucleotide Delivery, and Immuno-oncology.

- 3. BME 550. Tissue Engineering.** In 2017 I redesigned the BME graduate course in Tissue Engineering. This course focuses on the selection, processing, testing and performance of materials and cells used in tissue engineering. I developed several new lectures to provide concise content on topics relevant for Tissue Engineering. The first lecture covering biomaterial scaffold fabrication and characterization. Biomaterial characterization included content related to the analytical techniques and methods to perform complete biomaterial characterization from surface chemistry to bulk properties. This content allows students identify methods to perform in-depth material characterization in order to better engineering novel biomaterials. The second lecture covered cell-extracellular matrix and cell-material interactions. A third lecture was developed on signaling factors for cell fate and function. These two lectures provide an understanding of how cells communicate with their outside world via short-range and long-range signaling. A fourth lecture was re-developed and covered inflammation, wound healing and the foreign body response. This lecture provides the general knowledge of the stages of the body's response to implanted materials. It was generalized to cover any implantation site to provide broader application and understanding. Finally, I developed a new lecture on cartilage tissue engineering. This lecture covered the different types of cartilage and then focused tissue engineering strategies for articular cartilage. Understanding and retention of the new lecture content was evaluated in homework assignments and in-class tests.
- 4. BME 594. Biomedical Engineering Journal Club – Biomaterials and Tissue Engineering.** I introduced a new journal club option for the Biomedical Engineering graduate students. This course covers different topics in biomedical engineering research, both basic and translational related to biomaterials for tissue engineering applications. Graduate students need to learn the skills required to critically review literature, present published work, and develop their thoughts and ideas in a cohesive manner. Students select and read relevant journal articles to critique, prepare presentations and give short talks, engage in critical discussion, and provide feedback to fellow students. The objectives of the course are for students to learn about current topics within a focused area of biomedical engineering, to improve their ability to critically review literature, and develop their technical presentation skills.

Curriculum innovation and development

Fall 2017 Developed undergraduate curricular plan of study sub-specialization for Biomedical Engineering Department in Biomaterials - Biopharmaceutics with the option of a minor in either Chemistry or Materials

KEEN innovation and development

BME4831 D-term 2020, 2019, 2018

The KEEN module developed in 2017 was improved upon based on student feedback and outcomes. The module is based on an externally controlled device to delivery therapeutics on demand, over time while being "turned-off" when the desire used is not relevant. The module was developed into two-days where the first actively addressed to technology component and the second day actively address the social and ethical components. For day 1, pre-class reading was assigned to provide the background on the technology development. In class, the reading materials were briefly reviewed. The students were randomly assigned to work in groups to answer the following questions: "Will this product be successful? What are some of the potential constraints and/or challenges? How can it be improved?" and then generate a large post-it poster based on their discussion while addressing the following questions: What is one "new" application for this product? What are the requirements? (technical) Who are the customers? What are their

requirements? (customer) What are the potential risks?”. This day allowed the students to better understand the technology. Day 2 was the same as Spring 2017’s in-class experience (see below) framed around a 16-year birth control device being developed for developing world needs.

BME 4831 D-term 2017

An active learning module utilizing Entrepreneurial Mindset Learning was implemented as two, in-class experiences. The first in-class experience was student-driven learning about an implantable, microchip technology for trigger drug delivery at pre-programmed time intervals that can be remotely turned on and off. The second in-class experience was an active learning exercise on ethics of drug delivery technology framed around the same microchips technology specified for a 16-year birth control device being developed for developing world needs. Prior to class, the students were assigned reading on family planning, Bill and Melinda Gates Foundation, new articles on Microchips Biotechnology (the company developing the device), BBC articles on ethics and contraceptive use, and a controversial YouTube video criticizing the technology. The students also conducted a public opinion survey with friends and family asking, “what do you think about the usability of implantable, externally controlled microchip birth control that last for 16 years?” The preparation material and question were setup to provide students with multiple perspectives regarding this technology. During the in-class portion, the students divided into teams and brainstormed ethical issues around this technology. After which the teams were then assigned four social-ethical topics to develop pros and cons around and tasks with determining a recommendation for if the technology should be developed further. The teams then pitched their recommendation and why to the entire class. A final guided debriefing was performed (with assistance from Professor Curtis Abel, Prof. Leslie Dodson, and Kimberly Ornell) to discuss the module and reinforce the learning objectives (understanding of social and ethical implications of new drug technologies, assess the value created in the context of both engineering performance and social/ethical issues).

Outcomes assessment and/or accreditation preparation

Spring 2021	Led the BME department updates for the undergraduate distribution requirements to improve clarity in course expectations and policies (defined changes to the undergraduate catalog, developed the motion for CAO and full faculty approval, worked with CAO to answer questions and update the motion)
Fall 2020	Prepared Non-Binder Course Based Assessment (CBA) report for BME 2610 A’20
Fall 2020	Developed a case study for BME2610 on the development, implementation, and updates for BME2610 evaluation by the ABET evaluator
Spring 2020	Updated BME undergraduate tracking documents and example four year plan to reflect the current course recommendations and advising practices
Spring 2020	Prepared Non-Binder Course Based Assessment (CBA) report for BME 4831 C’20
Fall 2019	Prepared Non-Binder Course Based Assessment (CBA) report for BME 2610 A’19
Spring 2019	Reviewed (with Prof G. Pins, M. Rolle, A. Reidinger, and S. Ambady) Course Based Assessment (binders and non-binders) for all biomaterials courses in preparation for ABET accreditation
Spring 2019	Prepared Non-Binder Course Based Assessment (CBA) report for BME 4831 C’19
Fall 2018	Prepared Non-Binder Course Based Assessment (CBA) report for BME 2610 A’18
Spring 2017	Reviewed (with Prof G. Pins, M. Rolle, A. Reidinger, and S. Ambady) Course Based Assessment (binders and non-binders) for all biomaterials courses in preparation for ABET accreditation
Spring 2017	Prepared Non-Binder Course Based Assessment (CBA) report for BME 4831 D’17

5. Courses Taught at WPI

Undergraduate courses offered at WPI are on four 7-week terms (A, B, C, D) per year and have a four-number course sequence (e.g. 1000, 4999). Graduate courses offered at WPI are on two 14-week semesters (Fall and Spring). At the end of each course students are provided with a course evaluation form. The evaluation form contains a series of questions where the students provide a rating on a 5-point scale (1: very poor, 5: excellent). The “overall quality of the course” (Q1), “overall instructors teaching” (Q2), “instructor’s skill in providing understandable explanations” (Q6), and “amount the student learned from the course” (Q9) student ratings are provided below.

BME2610: Introduction to Bioprocess Engineering

A term 2021	45 students	Q1 – 3.5; Q2 – 3.7; Q6 – 3.9; Q9 – 3.9
A term 2020	61 students	Q1 – 4.1; Q2 – 4.2; Q6 – 4.3; Q9 – 4.3
A term 2019	45 students	Q1 – 4.1; Q2 – 4.0; Q6 – 4.1; Q9 – 4.4
A term 2018	48 students	Q1 – 3.6; Q2 – 3.5; Q6 – 3.5; Q9 – 3.7

Prior to AY18-19, Q7 = Q6, Q9 = Q7

BME 4831: Drug Delivery

C term 2022	48 students	Q1 – 4.8; Q2 – 4.8; Q6 – 4.6; Q9 – 4.6
C term 2021	39 students	Q1 – 4.5; Q2 – 4.5; Q6 – 4.5; Q9 – 4.5
C term 2020	31 students	Q1 – 4.4; Q2 – 4.6; Q6 – 4.6; Q9 – 4.2
D term 2019	29 students	Q1 – 4.7; Q2 – 4.7; Q6 – 4.7; Q9 – 4.7
D term 2018	29 students	Q1 – 4.50; Q2 – 4.42; Q7 – 4.46; Q9 – 4.4
D term 2017	33 students	Q1 – 4.06; Q2 – 3.83; Q7 – 4.00; Q9 – 4.06

BME 594: Biomedical Engineering Journal Club – Biomaterials and Tissue Engineering

Spring 2018	8 students	Q1 – 4.86; Q2 – 4.86; Q7 – 4.86; Q9 – 4.0
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BME/ME 550: Tissue Engineering

Fall 2019	32 students	BME (16) → Q1 – 4.5; Q2 – 4.6; Q6 – 4.8; Q9 – 4.7 ME (2) → Q1 – 4.5; Q2 – 4.0; Q6 – 5.0; Q9 – 4.5
Fall 2017	17 students	BME (12) → Q1 – 4.8; Q2 – 4.9; Q7 – 4.9; Q9 – 4.6 ME (4) → Q1 – 4.0; Q2 – 4.8; Q7 – 4.8; Q9 – 5.0

BME591: Graduate Seminar (Coordinator)

Spring 2021	28 students	undergraduates (10) → Q1 – 5.0; Q2 – 5.0; Q6 – 5.0; Q9 – 5.0 graduates (18) → Q1 – 4.8; Q2 – 4.6; Q6 – 4.6; Q9 – 3.9
Fall 2020	35 students	undergraduates (7) → Q1 – 5.0; Q2 – 5.0; Q6 – 5.0; Q9 – 4.5 graduates (28) → Q1 – 4.6; Q2 – 4.7; Q6 – 4.7; Q9 – 4.3

Guest Lecture at WPI

B term 2021	BME 1001: Introduction to Biomedical Engineering (Provided one lecture on biomaterials and chondroitin-sulfate based drug delivery systems)
D term 2021	CHE3301: Introduction to Biological Engineering (Provided one lecture on Cell Immobilization Systems, including examples of various fermentation processes and tissue engineering applications)
B term 2020	BME 1001: Introduction to Biomedical Engineering (Provided pre-recorded lectures on biomaterials for tissue engineering and drug delivery systems for asynchronous viewing; attended a lecture to answer questions from students)
A term 2020	BME 1001: Introduction to Biomedical Engineering (Provided pre-recorded lectures on biomaterials for tissue engineering and drug delivery systems for asynchronous viewing; attended a lecture to answer questions from students)

D term 2020	BME 1001: Introduction to Biomedical Engineering (Provided pre-recorded lectures on biomaterials for tissue engineering and drug delivery systems for asynchronous viewing; attended a lecture to answer questions from students)
B term 2019	BME 1001: Introduction to Biomedical Engineering (Provided one lecture on biomaterials and silk-based drug delivery systems)
C term 2019	BME 361x: Transport Analysis in Bioengineering (Provided one lecture on example material balance problems)
B term 2018	BME 1001: Introduction to Biomedical Engineering (Provided one lecture on biomaterials and silk-based drug delivery systems)
B term 2017	BME 1001: Introduction to Biomedical Engineering (Provided one lecture on biomaterials and silk-based drug delivery systems)
B term 2016	BME 1001: Introduction to Biomedical Engineering (Provided one lecture on biomaterials for tissue regeneration and drug delivery systems)

Course Taught Prior to Joining WPI

Prior to joining WPI, I was an instructor at Tufts University in the Biomedical Engineering Department. Courses at Tufts University run on a semester basis (Fall, Spring) for 13-week semesters. At the end of each course students are provided with a course evaluation form. The evaluation for contains 16 questions related to the course material and evaluation of the instructor. Twelve of the questions ask the students to provide a rating on a 5-point scale (1: very poor, 5: excellent). The “overall evaluation of the instructor” rating, Q15, provided below is the mean of question #15 on the course evaluation form.

BME 153: Biomaterials and Regenerative Medicine

Fall 2015 53 students Q15: 3.26 ± 0.94

Guest Lectures Provided at Tufts University

Spring 2016	BME 154: Tissue Engineering and Regenerative Medicine (Taught half of a three hour lecture on kidney tissue engineering and disease modeling)
Fall 2015	BME 165: Principles of Controlled Release and Drug Delivery (Taught one three hour lecture on biomaterials for drug delivery covering material selection, formulation, modes of diffusion, targeting drug delivery as well as silk fibroin for chemotherapy delivery and special topics in immunoncology)

Guest Lectures Provided at the University of Massachusetts - Lowell

Spring 2016	PLAS 5750: Biomaterials (Taught one three-hour lecture on biomaterials for drug delivery covering material selection, formulation, modes of diffusion, targeting drug delivery as well as silk fibroin for chemotherapy delivery and special topics in immunoncology)
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6. Undergraduate Projects (MQPs, IQPs, Sufficiency Projects) advised and co-advised

Undergraduate Interactive Qualifying Projects (IQPs)

Undergraduate Major Qualifying Projects (MQPs)

1. MQP Advisor, “Bioreactor design for bacterial cellulose production,” Sawyer Fenlon, Edward Hay, Isabelle Claude, Catherine Williams, A, B, C, and D, term 2021-2022.
2022 BME Department Finalist for the Provost Award
2. MQP Advisor, “Injectable glycosaminoglycan-based drug delivery systems,” Corinne Saucier, Brianna McCuaig, Camila Cavalcanti Bezerra M Carvalho, Nicole Racca, A, B, C, and D, term 2021-2022.
2022 BME Department Finalist for the Provost Award
3. MQP Consultant, “The Design of an Implantable Reparative Device for Ulnar Collateral Ligament Tears in Overhead Throwing Athletes” Maria Decelles, Evan Hallberg, Brooklynn Paris, Meagan Smith. 2021-2022. **Advisors:** Karen Troy, George Pins, David Magit (Beth Israel Deaconess Medical Center)

Provided advice on material choices, hydrogel formats, and interpretation of existing literature. Provided sonication silk fibroin solution and training on silk hydrogel fabrication for experiments.

4. MQP Advisor, "Tumor on a Chip," Sarah Boormeester, Elizabeth Inger, Coulter Ralston, A, B, C, and D terms, 2020-2021, #JMC-2103.
5. MQP Advisor, "Anti-Shock Suit," Catherine Blejwas, Megan Heinle, Anne Hughes, Colleen O'Malley, 2020-2021, #JMC-2103.
2021 BME Department MQP Excellence Award
6. MQP Advisor, "Rapid Cell Strainer Device," Jon Lazri, Kelly McCauley, Rebecca Richard, Quillyn Smith, Jacob Steinman, 2020-2021, #JMC-2103.
7. MQP Consultant, "Electrospun Ulnar Collateral Ligament Regeneration Device," Paul Bonarrigo, Logan Gaudette, Carolyn Heighton, Camden Holm, Gregory Kaleshian. 2020-2021. Advisor: George Pins.
Provided advice, guidance, and in-lab assistance on fluorescent modification of a protein, purification, and quantification.
8. MQP Co-Advisor, "Paclitaxel Release System," Michaela Johnson, Jason Rivers, Summer Thurlow, A, B, C, and D terms, 2019-2020, #SCR AB1D. Co-advisor: Susan C. Roberts.
9. MQP Advisor, "Cancer Cell Collection Device". Kelly Borden, Sydney Hurley, Rachel Peterson, A, B, C, and D terms, 2018-2019, #JC9 1901. Writing double-major advisor: Ryan Madan.
10. MQP Advisor, "Skin Preparation Stick," Alicia Costi, Ravneet Kaur, Emily Kolaya, Kalyn Ricciuti, A, B, C, and D terms, 2018-2019, #JC9 1902.
2019 BME Department Finalist for the Provost Award
11. MQP Co-Advisor, "Taxus Scaffold Development," Dasia Aldarondo, Adele Werner, Donald Dione, A, B, C, and D terms, 2018-2019, #SCR. Co-advisor: Susan C. Roberts.
12. MQP Advisor, "Endothelialized Tumor Model," Nicole Chittim, McKenzie Brunelle, Ryan Conlan, Emily Newman, Emma Sheils, A, B, C and D terms, 2017-2018, #JC9 1802.
2018 BME Department Finalist for the Provost Award
13. MQP Advisor, "Chondroitin Sulfate Particles for Drug Delivery," Leonela Sabrina Vega Loaisa, M. Masrur Rahman, Kathy Suqui, Fabian Bonilla, A, B, C and D terms, 2017-2018, #JC9 ABFP.
14. MQP Consultant, 2017-2018. "Exosome Delivery to Cerebrospinal Fluid," Monique Desiree Desnoyers, Kaylee Perron, Kyle Skillings, Darin Trzeciak. 2017-2018. Advisor: Raymond Page.
Provided advice on material choices, hydrogel formats, and interpretation of existing literature. Provided sonication silk fibroin hydrogels and UV crosslinking chondroitin sulfate-methacrylate hydrogels for experiments.
15. MQP Co-Advisor, "Design of a Composite Fibrin Scaffold with Microengineered Vascular Network," Alexandra Burr, Anthony Campagna, Janine Fatal, James Lin, Elizabeth van Zyl, A, B, C and D terms, 2016-2017, #GXP 1701, Advisor: George D. Pins.
16. MQP Co-Advisor, "Viral Removal in Microthreads," Brian D'Amore, Emily Ferreira, Erin McConnaghy, A, B, C and D terms, 2016-2017, #GRG 1701 Advisor: Glenn R. Gaudette.
17. MQP Consultant, "Electrospun Tissue Engineering Scaffold," Michelle Bleau, Hasson Shakor Harris Wilcher, Benjamin Heney, Zachary Simpson, 2016-2017. Advisor: Sakthikumar Ambady.
Provided advice on material choices, electrospinning silk, and interpretation of existing literature. Provided silk fibroin for experiments.

7. Graduate theses and dissertations advised at WPI

Theses, Projects, and Dissertations Advised

1. Ph.D. Dissertation Advisor, Melissa Wojnowski, Fall 2020 – present
Funded by the Aberdale Family Graduate Fellowship (to the Coburn Lab)
2. Master's Project Advisor, Melissa Wojnowski, Summer 2019 – Spring 2020
3. Ph.D. Dissertation Advisor, Katelyn Mistretta, Spring 2019 – present
4. Master's Project Advisor, Jennifer Whelehan, Fall 2019 – Spring 2020

5. Master's Project Advisor, Bryanna Dellaripa, Fall 2018 – Spring 2019
6. Ph.D. Dissertation Advisor, Carolina Villarreal, Spring 2018 – present
Funded by Boston Scientific
7. Master's Thesis Advisor, Mohammed Masrur Rahman, Summer 2018 – Spring 2021 (Defense Date: April 22, 2021)
 - *Current employer: Absorption Systems*
8. Ph.D. Dissertation Advisor, Elizabeth Van Zyl, 2017 – present
9. Ph.D. Dissertation Advisor, Kimberly Ornell, Fall 2016 – August 2019 (Defense Date: July 26, 2019)
 - *Current employer: AbbVie*
10. Ph.D. Dissertation Advisor, Alycia Abbott, Fall 2016 – July 2021 (Defense Date: June 9, 2021)
 - *Current employer: Boston Scientific*
11. Master's Thesis Advisor, Natalia Vargas Montoya, 2016 – 2018 (Defense Date: July 13, 2018)
 - *Current employer: Translate Bio*

Theses and Project Committee Member

1. Ph.D. Dissertation Committee Member, Brian Ruliffson, Fall 2021 - present
2. Chair, Ph.D. Dissertation Committee Member, Andre Figueroa Milla, Fall 2021 - present
3. Ph.D. Dissertation Committee Member, Wenxu Han (ChE), Fall 2021 – present
4. Ph.D. Dissertation Committee Member, Zhiru Zhou (ChE), Fall 2021 - present
5. Master's Project Committee Member, Paige Waligora, Spring 2021
6. Master's Thesis Committee Member, Colin Coutts, Spring 2021 – Summer 2021
7. Ph.D. Dissertation Committee Member, Jonian Grosha, Spring 2020 – Summer 2021
8. Ph.D. Dissertation Committee Member, Kevin Keating (ChE), Spring 2020 – present
9. Ph.D. Thesis External Reviewer, Guzmán Carissimi, University de Murcia, Spain, 2020. Ph.D. Advisor: Gloria Vllora Cano
10. Chair, Master's Thesis Committee Member, Elizabeth English, Summer 2019 – Fall 2019
11. Chair, Master's Thesis Committee Member, Johanna Santos, Summer 2018
12. Chair, Ph.D. Dissertation Committee Member, Meagan Carnes, Spring 2018 - August 2020
13. Ph.D. Dissertation Committee Member, Elizabeth Crowley (BBT), Spring 2018 - present
14. Chair, Ph.D. Dissertation Committee Member, Dalia Shendi, Spring 2017 – August 2019
15. Ph.D. Dissertation Committee Member, Meghan McGill (Tufts University), Spring 2017 – April 2019.

Ph.D. Qualifying Exam Committee Member

1. Giorgio Menallo, Winter/Spring 2022
2. Brian Ruliffson, Summer 2021
3. Andre Figueroa Milla, Summer 2021
4. Jordan Jones, Summer 2020
5. Mahvash Jebeli, Spring 2020
6. Elizabeth Crowley (BBT), Fall 2019
7. Jonian Grosha, Fall 2019
8. Zach Goldblatt, Fall 2017
9. Frank Benesch-Lee, Fall 2016, Spring 2017

8. Independent studies conducted at WPI

Directed Research

1. Advisor, Valeria Urena Quiros, “In vitro co-culture modeling of NB cells with fibroblasts”, Fall 2021.

2. Advisor, Melissa Wojnowski, Fall 2020 – present
3. Advisor, Katelyn Mistretta, Spring 2019 – Summer 2020
4. Advisor, Mohammed Masrur Rahman, Spring 2018 – Spring 2021
5. Advisor, Carolina Villarreal, Spring 2018 – Spring 2020
6. Advisor, Elizabeth Van Zyl, “Altered culture conditions for optically clear, degradable bacterial-derived hybrid cellulose biomaterials.” Spring 2018 – Summer 2020.
7. Advisor, Alycia Abbott, “Modification of biomaterial chemistry for tissue engineering,” Fall 2016 – Summer 2020.
8. Advisor, Kimberly Ornell, “Engineering silk fibroin scaffolds to model hypoxia in neuroblastoma,” Summer 2016 – August 2019.
9. Advisor, Emily Newman. “Dot blot cytokine array assessment of in vitro neuroblastoma models.” Fall 2018.
10. Advisor, Natalia Vargas Montoya, “Novel Silk micro-Particle Fabrication Technique for Cancer Therapy,” Fall 2016 – Summer 2018.
11. Advisor, Nhi Phan, “Decellularization of cultured plant cells and tissues,” Spring 2018.
12. Advisor, Elizabeth Van Zyl, “Amine-modified silk scaffolds for cell growth.” Fall 2017.
13. Advisor, Nhi Phan, “Sensor system for perfusion bioreactor,” Fall 2017.
14. Advisor, Sarah Sisson, “Bioreactor fabrication for hollow channel scaffolds,” Fall 2016 – Spring 2017.

Undergraduate Independent Studies

1. Advisor, Tera Keang, D-term 2022 ISU JC9 3999.
2. Advisor, Camila Cavalcanti Bezerra M Carvalho, “Drug selection for biomaterials” A-term 2020 ISU JC9 3999.
3. Advisor, Mattea Gravina, “Assess and compare silk images” D-term 2020 ISU JC91 3999.
4. Advisor, Elena Raden, “Scaffold protein binding assay” C-term 2020 ISU JC91 3999.
5. Advisor, Keely Nistler, “CSMA gel size manipulation” B-term 2019 ISU JC92 3999.
6. Advisor, Coulter Ralston, “Optimization of cell seeding” B-term 2019 ISU JC93 3999.
7. Advisor, Elena Raden, “Collagen binding assay” A-term 2019 ISU JC91 3999.
8. Advisor, Shanna Bonanno, “Bacterial cellulose biocompatibility” A-term 2019 ISU JC9 3999.
9. Advisor, Elena Raden, “Avidin modified silk scaffolds” D-term 2019 ISU JC92 2999.
10. Advisor, Mattea Gravina, “Analyze silk scaffold porosity” D-term 2019 ISU JC91 2999.
11. Advisor, Coulter Ralston, “Chondroitin-silk oncology gels” D-term 2019, ISU JC9 2999.
12. Advisor, Jacob Boles, “Cell response to drug release” B-term 2018, ISU JC9 3999.
13. Advisor, Coulter Ralston, “Biomaterials research” B-term 2018, ISU JC9 2999.
14. Advisor, Jessica Brewster, “Fibroblast assay development” B-term 2018, ISU JC9 3999.
15. Advisor, Danilo Lozada, “Antibody release from silk gel” C-term 2018, ISU JC9 3999.
16. WPI Summer Research Fellowship Advisor, Jacob Boles, “Development of a drug delivery system using ribociclib and sunitinib for pancreatic neuroendocrine tumor treatment” Summer 2018.
17. Advisor, Stephanie Smieszek, “Recellularization of Cancer Cell-Derived Extracellular Matrix” B-term 2017, ISU JC9 3999.
18. Advisor, Emily Newman, “Scaffolds with Hollow Channels” D-term 2017, ISP JC9 3000.

Undergraduate Research Assistants (lab positions that included volunteer time)

1. Elizabeth Hicks, Fall 2021 - present
2. Micah Wilde, Summer 2021 (EREE)
3. Tera Keang, Summer 2021 (EREE) – present
4. Camila Cavalcanti Bezerra M Carvalho, Summer 2020 – Spring 2021

- *PhD student, Brown University, BME*
- 5. Sawyer Fenlon, Fall 2019 – Spring 2022
 - Current employer: Eurofins Scientific
- 6. Keely Nistler, Spring 2019 – Fall 2019
- 7. Elena Raden, Spring 2019 – Spring 2020
 - Current employer: Merck
- 8. Mattea Gravina, Spring 2019 – Fall 2020
 - Master of Science in Materials Science, WPI
- 9. Siyuan Li, Spring 2019
 - Graduate student, Wake Forest Institute for Regenerative Medicine
- 10. Shanna Bonanno, Spring 2019 – Spring 2020
 - *PhD student, Northeastern University, BME*
- 11. Jessica Brewster, Spring 2018 – Fall 2018
 - Current employer: Cytiva
- 12. Coulter Ralston, Spring 2018 – Spring 2021
 - *PhD student, Cornell University, BME*
- 13. Erica Willis, Spring 2017
- 14. Diana Avram, Fall 2017
 - *Current employer: Medtronic*
- 15. Jacob Boles, Fall 2017 – Fall 2018 (Summer Undergraduate Research Fellowship, 2018)
 - *Master of Engineering in BME Cornell University*
 - *Current employer: Organogenesis*
- 16. Danilo Lozada, Fall 2017 – Spring 2018
 - Master's Student in Applied Statistics at Rochester Institute of Technology
 - Current employer: NYU Winthrop Hospital
- 17. Rachel Peterson, Summer 2017 – Spring 2018
 - *Current employer: Vivonics, Inc.*
- 18. Stephanie Smieszek, Summer 2017 – Spring 2018
 - *Current employer: Takeda*

NSF Research Experience for Undergraduate Students

1. Advisor, Roisin Donnelly, “Development of an assay to evaluating therapeutic response of cells in multiple culture models,” Summer 2018.
 - *Current position: PhD student at University of Delaware*
2. Co-Advisor (Primary: Susan Roberts), Daisa Aldarondo, “Developing a scaffold from taxus plant cells to improve target drug delivery,” Summer 2018.
 - *Current position: PhD student at Carnegie Mellon University*
3. Advisor, Megan Sanders, “Tuning silk fibroin scaffold pore size via varying temperature-controlled lyophilization parameters,” Summer 2017.
 - *Current position: PhD student at University of Florida*

WPI EREE Students

1. Advisor, Micah Wilde, “Bacterial derived cellulose cleaning methods for wound dressing applications,” Summer 2021.
2. Advisor, Tera Keang, “Chondroitin sulfate-methacrylate applications for anthracycline binding and sustained release,” Summer 2021.

WPI SURF Students

1. Advisor, Jacob Boles, “Development of a sustained release drug delivery system for ribociclib and sunitinib for pancreatic neuroendocrine tumor treatment,” Summer 2018.

High School Students Mentored

1. Advisor, Praneet Mekala (Massachusetts Academy of Math and Science at WPI), “Mechanical properties of silk scaffolds compared to muscle tissue,” Fall 2017 and Spring 2018.
2. Advisor, Julia Ross-Coburn (Pathfinder Regional Vocational Technical High School), “*Binding and release of avidin from silk films*,” Summer 2017.

9. Academic advising at WPI

Number of academic advisees

Academic year	Undergraduate / graduate
2021 - 22	32 / 4
2020 - 21	30 / 6
2019 - 20	35 / 9
2018 - 19	21 / 5
2017 - 18	14 / 5
2016 - 17	8 / 4

- For the graduate students, I schedule 20-minute meetings twice a year to review their academic progress and to discuss their plans of study for the upcoming semester. These meetings are supplemented by advising correspondence via email and student-requested meetings.
- For the undergraduate students, I schedule a 20-minute meeting once per year to review their academic progress and to discuss their plans of study for the upcoming semester. These meetings are supplemented by advising correspondence via email and student-requested meetings.
- I hold *ad hoc* meetings with each of my advisees to discuss their short and long-term career goals as well as strategies for attaining these goals.

10. Honors, awards and other recognition related to teaching

1. 2021 – Trustees Award for Academic Advising
2. 2021, 2020, 2019 – Faculty Champion, WPI Varsity Athletics Student-Athlete Advisory Council
 - a. Nominated by a WPI Varsity Student-Athlete or Coach
3. 2019-2020 - WPI BME Teacher of the Year Award
4. 2019 - Nominated for the “Outstanding Academic Advisor of the Year” award

11. Professional development related to teaching

I routinely attend WPI-based, local, and national meetings and workshop to build by teaching skills. Here, I present to topics and dates for meetings or workshops:

- PowerPlay “Speaking Up: How Bystanders Can Change the Conversation about Social Bias”, February 10, 2022.
- Forth Biomedical Engineering Education Summit Meeting. Cleveland, OH. May 29-31, 2019.

Morgan Teaching and Learning Center Hosted Events	
Event Title	Date
Building a Teaching Portfolio	March 10, 2021
Bias and Stereotyping on Teams Training	August 15, 2019
Faculty Institute for Online Teaching	May 2, 2019
Getting Your Start with Open Education Resources	October 1, 2018

Teaching WPI's Signature Project Experiences: A Workshop for MQP and IQP Advisors	August 20, 2018
Teaching and Learning Showcase	May 3, 2017
Early Career Faculty Luncheon	March 8, 2017
Passive Voice or Active Voice? Talking to Students about the Distinction – And Why it Matters	February 10, 2017
Creating Significant Learning Experience: A Workshop on Course Design	January 7, 2017
Early Career Faculty Luncheon	December 7, 2016

Kern Entrepreneurial Engineering Network Sponsored Events	
Event Title	Date
KEEN National Conference	January 3-5, 2019
KEEN Value Creation Pitch Meeting	May 21, 2018
KEEN Value Creation Pitch Meeting	April 23, 2018
KEEN Value Creation Pitch Meeting	April 12, 2018
KEEN Workshop on Value Creation	January 9, 2018
KEEN National Conference	January 3-5, 2018
Curt Carlson Innovative 100 KEEN Event	November 1, 2017
KEEN ICE Workshop	August 15 – 17, 2017

Scholarship

RESEARCH HIGHLIGHTS

- **Fifteen (15) peer-reviewed research articles** published with WPI students over the past 6 years; three (3) review articles published by WPI graduate students since joining WPI; thirty-seven (37) manuscript publications since joining WPI; fifty-eight (58) publications during research career; h-index more than doubled since joining WPI (see Citation Index)
- **One (1) patent issued, and an additional four (4) patents filed** from work at WPI; two (2) patents issued, and an additional five (5) patents filed in total
- **2020 Biomaterials Science Emerging Investigators**, Royal Society of Chemistry
- **2020 Sigma Xi Award for Outstanding Research and Scholarship at WPI**; inducted into Sigma Xi, The Scientific Research Society, in 2019
- **\$1.00 million to PI Coburn** from the NSF, NIH, DoD, industry, private foundations, gifts, and internally (excluding startup support); co-PI on grants total \$2.45 million
- **Thirteen (13) invited talks**
- **Sixteen (16) oral presentations and twenty-four (24) poster presentations at national meetings related to research performed at WPI**; thirty-four (34) oral presentations and forty-six (46) poster presentations at national meetings during research career (all accepted through a peer-reviewing processed)

12. Publications

In reverse chronological order. WPI undergraduate students in *italics* and graduate students underlined. # indicates co-first authors. § indicates corresponding author.

Journal impact factors reported using available data as of May 18, 2022

Number of citations as of May 18, 2022: 2,509

Peer-Reviewed Original Research or Review Articles Published or in press: from WPI since July 2016

1. Villarreal-Otalvaro C, Coburn JM. (2021) Fabrication methods and form factors of gellan gum-based materials for drug delivery and anti-cancer applications. Accepted ACS Biomaterials Science and Engineering. DOI: 10.1021/acsbiomaterials.1c00685
Journal impact factor: 4.749
Times cited: 0
2. Bond KH, Chiba T, Wynne KPH, Vary CPH, Sims-Lucas S, Coburn JM, Oxburgh L. (2021) The extracellular matrix environment of clear cell renal cell carcinoma determines cancer associated fibroblast growth. *Cancers*, 13, 5873.
Journal impact factor: 6.639
Times cited: 2
3. Abbott A, Coburn JM. (2021) HepaRG maturation on silk fibroin scaffolds toward development of a 3D in vitro liver model, Accepted ACS Biomaterials Science and Engineering. DOI: 10.1021/acsbiomaterials.0c01584
Journal impact factor: 4.749
Times cited: 0
4. Keutgen XM, Ornell KJ, Vogl A, Lakiza O, Miller P, Beckett M, Setia N, Weichselbaum RR, Coburn JM. (2021) Sunitinib-loaded chondroitin sulfate hydrogels as a novel drug-delivery system for the treatment of pancreatic neuroendocrine tumors, *Annals of Surgical Oncology*. DOI: 10.1245/s10434-021-10245-1
Journal impact factor: 5.344
Times cited: 1
5. Abbott A, Bond K, Chiba T, Sims-Lucas S, Oxburgh L, Coburn JM. (2021) Development of a mechanically matched silk scaffolded 3D clear cell renal cell carcinoma model, *Materials Science and Engineering: C*. 126:11214.
Journal impact factor: 7.328
Times cited: 3
6. Ornell KJ, Mistretta KS, Ralston CQ, Coburn JM. (2021) Development of a stacked, porous silk scaffold neuroblastoma model for investigating spatial differences in cell and drug responsiveness. *Biomaterials Science*. 9:1272-1290.
Journal impact factor: 6.843
Times cited: 1
7. Ornell KJ, Chiu, B, Coburn JM. (2020) Development of a dinutuximab delivery system using silk foams for GD2 targeted neuroblastoma cell death. *Journal of Biomedical Research Part A*. 109(8):1393-1405.
Journal impact factor: 4.396
Times cited: 2
8. Carnes ME, Gonyea CR, Mooney RG, Njihia JW, Coburn JM, Pins GD. (2020) Horseradish peroxidase-catalyzed crosslinking of fibrin microthread scaffolds. *Tissue Engineer Part C*. 26(6):317-331.
Journal impact factor: 3.056
Times cited: 2
9. Montoya NV, Peterson R, Ornell KJ, Albrecht DR, Coburn JM. (2020) Silk particle production based on silk/PVA phase separation using a microfabricated co-flow device. *MDPI Molecules*. 25(4): 890.
Journal impact factor: 4.412
Times cited: 12
10. Ornell KJ, Taylor JS, Zeki J, Ikegaki N, Shimada H, Coburn JM, Chiu B. (2020) Local delivery of Dinutuximab from silk protein biomaterial for treatment of orthotopic neuroblastoma model. *Cancer Medicine*. 9(8):2891-2903.
Journal impact factor: 4.452
Times cited: 7
11. Phan NV, Wright T, Xu J, Coburn JM. (2020) In vitro biocompatibility of decellularized cultured plant cell-derived matrices. *ACS Biomaterials Science and Engineering*. 6(2): 822-832.

Journal impact factor: 4.749

Times cited: 14

12. Ornell KJ, Mistretta KS, Newman E, Ralston CQ, Coburn JM. (2019) Three-dimensional, scaffolded tumor model to study cell-driven microenvironment effects and therapeutic responses. *ACS Biomaterials Science and Engineering*. 5(12): 6742-6754.

Journal impact factor: 4.4749

Times cited: 7

13. Ornell KJ, Coburn JM. (2019) Developing preclinical models of neuroblastoma: driving therapeutic testing. *BMC Biomedical Engineering*, 1:33.

Journal impact factor: 2.819

Times cited: 15

14. van ZyL E, Coburn JM. (2019) Hierarchical structure of bacterial-derived cellulose and impact on biomedical applications. *Current Opinion in Chemical Engineering*, 24:122-130.

Journal impact factor: 5.163

Times cited: 36

15. Taylor JS, Zeki J, Ornell K, Coburn J, Shimada H, Ikegaki N, Chiu B. (2019) Down-regulation of MYCN protein by CX-5461 leads to neuroblastoma tumor growth suppression. *Journal of Pediatric Surgery*. 54(6):1192-1197.

Journal impact factor: 2.545

Times cited: 15

16. Ornell KJ, Phan NV, Lozada D, Coburn JM. (2019) Controlling methacryloyl substitution of chondroitin sulfate: Injectable hydrogels with tunable long-term drug release profiles. *Journal of Materials Chemistry B*. 7:2151-2161.

Journal impact factor: 6.331

Times cited: 32

Highlighted in a web collection that features the top 20 most popular articles published in Journal of Materials Chemistry B in 2019.

17. Abbott AA, Oxburgh L, Kaplan DL, Coburn JM. (2018) Avidin adsorption to silk fibroin films as a facile method for functionalization. *Biomacromolecules*. 19(9):3705-3713.

Journal impact factor: 6.988

Times cited: 16

18. Niemas-Teshiba R, Matsuno R, Wang L, Tang X, Chiu B, Zeki J, Coburn J, Ornell K, Naranjo A, Van Ryn C, London W, Hogart M, Gastier-Foster J, Look AT, Park J, Maris J, Cohn S, Seeger R, Asgharzadeh S, Ikegaki N, Shimada H. (2018) MYC-family protein overexpression and prominent nucleolar formation represent prognostic indicators and potential therapeutic targets for aggressive High-MKI Neuroblastomas: A Report from the Children's Oncology Group. *Oncotarget*. 9(5):6416-6432.

Journal impact factor: 5.168

Times cited: 25

Peer-Reviewed Original Research Articles Published or in press: from prior training since July 2016

19. Townsend KL, Pritchard E, Coburn JM, Kwon YM, Blasckiewicz M, Lynes M, Kaplan DL, Tseng Y-H. (2022) Silk hydrogel-mediated delivery of bone morphogenetic protein 7 (BMP7) directly to subcutaneous white adipose tissue (scWAT) increases browning and energy expenditure. Accepted, *Frontiers in Bioengineering*.

Journal impact factor: 5.89

Times cited: 0

20. Taylor JS, Yavuz B, Zeki J, Wood L, Ikegaki N, Coburn J, Harrington K, Shimada H, Kaplan DL, Chiu B. (2020) Enhancing sustained-release local therapy: Single versus dual chemotherapy for the treatment of neuroblastoma. *Surgery*. 167(6):969-977.

Journal impact factor: 3.982

Times cited: 2

21. Taylor JS, Sha L, Ikegaki N, Zeki J, Deaton R, Harris J, Coburn J, Sethi A, Shimada H, Kaplan DL, Gann P, Chiu B. (2019) Replicating and identifying large cell neuroblastoma using high-dose intra-tumoral chemotherapy and automated digital analysis. *Journal of Pediatric Surgery*. 54(12): 2595-2599.
Journal impact factor: 2.545
Times cited: 1
22. Sundarakrishnan A, Zukas H, Coburn J, Bertini B, Liu Z, Georgakoudi I, Baugh L, Dasgupta Q, Black L, Kaplan D. (2019) Bioengineered in vitro tissue model of fibroblastic focus (FF) for modeling pulmonary fibrosis. *ACS Biomaterials Science & Engineering*. 5(5): 2417-2429.
Journal impact factor: 4.749
Times cited: 21
23. Yavuz B, Zeki J, Harrington K, Coburn J, Ikegaki N, Kaplan D, Chiu B. (2019) Silk reservoirs for local delivery of cisplatin for neuroblastoma treatment: In vitro and in vivo evaluation. *Journal of Pharmaceutical Sciences*. 108(8):2748-2755.
Journal impact factor: 3.534
Times cited: 12
24. Gupta AK, Coburn JM, Davis-Knowlton J, Kimmerling E, Kaplan DL, Oxburgh L. (2019) Scaffolding kidney organoids on silk. *Journal of Tissue Engineering and Regenerative*. 13(5):812-822.
Journal impact factor: 3.963
Times cited: 19
Top downloaded paper from the Journal of Tissue Engineering and Regeneration, 2018-2019
25. Zeki J, Taylor JS, Yavuz B, Coburn J, Ikegaki N, Kaplan DL, Chiu B. (2018) Disseminated injection of vincristine-loaded silk gel improves the suppression of neuroblastoma tumor growth. *Surgery*. 164(4):909-915.
Journal impact factor: 3.982
Times cited: 12
26. Yavuz B, Zeki J, Coburn JM, Ikegaki N, Levitin D, Kaplan DL, Chiu B. (2018) In vitro and in vivo evaluation of etoposide-silk wafers for neuroblastoma treatment. *Journal of Controlled Release*. 3:162-171.
Journal impact factor: 9.776
Times cited: 20
27. Ashari N, Pang HW, Simon T, Xiong Y, Coburn JM, Bromberg JS, Kaplan DL, McLenithan J, Fontaine MJ. (2018). Silk fibroin preserves beta cell function under inflammatory stress while stimulating islet cell surface GLUT2 expression. *Cellular Immunology*. 329:10-16.
Journal impact factor: 4.868
Times cited: 8
28. Montalbán MG, Coburn JM, Lozano-Pérez AA, Cénis JL, Vllora G, Kaplan DL. (2018) Production of curcumin-loaded silk fibroin nanoparticles for cancer therapy. *MDPI Nanomaterials*. 8(2):126.
Journal impact factor: 5.076
Times cited: 106
29. McGill M, Coburn JM, Partlow B, Mu X, Kaplan DL. (2017) Molecular and macro-scale analysis of enzyme-crosslinked silk hydrogels for rational biomaterial design. *Acta Biomaterialia*. 63:76-84.
Journal impact factor: 8.947
Times cited: 60
30. Coburn J, Harris J, Cunningham R, Zeki J, Kaplan DL, Chiu B. Manipulation of variables in local controlled release vincristine treatment in neuroblastoma. (2017) *Journal of Pediatric Surgery*. 52(12):2061-2065.
Journal impact factor: 2.545
Times cited: 9
31. Zhang L, Herrera C, Coburn J, Olejniczak N, Ziprin P, Kaplan DL, LiWang PJ. (2017) Stabilization and sustained release of HIV inhibitors by encapsulation in silk fibroin films. *ACS Biomaterials Science and Engineering*. 3(8):1654-1665.

Journal impact factor: 4.749

Times cited: 18

News mention: Medicalxpress, "Researcher continues progress toward effective HIV inhibitor"

32. Pellis A, Silvestrini L, Scaini D, Coburn JM, Gardossi L, Kaplan DL, Acero EH, Guebitz GM. (2017) Enzyme-catalyzed functionalization of poly(L-lactic acid) for drug delivery applications. *Process Biochemistry*. 59:77-83.

Journal impact factor: 3.757

Times cited: 41

33. Brown JE, Moreau JE, Berman AM, McSherry HJ, Coburn JM, Schmidt DF, Kaplan DL. (2017) Shape memory silk protein sponges for minimally invasive tissue regeneration. *Advanced Healthcare Materials*. 6(2).

Journal impact factor: 9.933

Times cited: 27

34. Coburn JM[#], Harris J[#], Zakharov AD, Poirier J, Ikegaki N, Kajdacsy-Balla A, Pilichowska M, Lyubimov AV, Shimada H, Kaplan DL, Chiu B. (2017) Implantation of chemotherapy-loaded controlled release platform within neuroblastoma tumor. *International Journal of Cancer*. 140(3):726-735.

Journal impact factor: 7.396

Times cited: 36

35. Kumar M, Coburn JM, Kaplan DL, Mandal BB. (2016) Immuno-informed 3D silk-biomaterials for tailoring biological responses. *Applied Materials and Interfaces*. 8(43):29310-22.

Journal impact factor: 9.229

Times cited: 36

36. Harris JC, Coburn JM, Kajdacsy-Balla A, Kaplan DL, Chiu B. (2016) Sustained delivery of vincristine inside an orthotopic mouse sarcoma model decreases tumor growth. *Journal of Pediatric Surgery*, S0022-3468(16): 30363-3.

Journal impact factor: 2.545

Times cited: 11

37. Sundarakrishnan A, Acero EH, Coburn J, Chwalek K, Partlow B, Kaplan DL. (2016) Phenol red-silk tyrosine cross-linked hydrogels. *Acta Biomaterialia*, 42:102-13.

Journal impact factor: 8.947

Times cited: 22

Peer-Reviewed Original Research Articles Published or in press: Published before joining WPI July 2016

38. Zhao S, Chen Y, Partlow BP, Golding AS, Tseng P, Coburn J, Applegate MB, Moreau JE, Omenetto FG, Kaplan DL. (2016) Bio-functionalized silk hydrogel microfluidic systems. *Biomaterials*, 93:60-70.

Journal impact factor: 12.479

Times cited: 82

39. Kim C, Jeon OH, Kim DU, Chae J, Shores L, Bernstein N, Bhattacharya R, Coburn JM, Yarema KJ, Elisseff JH. (2016) Local delivery of a carbohydrate analog for reducing arthritic inflammation and rebuilding cartilage. *Biomaterials*, 83:93-101.

Journal impact factor: 12.479

Times cited: 17

40. Applegate MB, Partlow BP, Coburn J, Marelli B, Pirie C, Pineda R, Kaplan DL, Omenetto FG. (2016) Photocrosslinking of silk fibroin using riboflavin for ocular prostheses. *Advanced Materials*, 28(12):2417-20.

Journal impact factor: 30.849

Times cited: 114

41. Coburn JM, Na E, Kaplan DL. (2015) Modulation of vincristine and doxorubicin binding and release from silk films. *Journal of Controlled Release*, 220 (Pt A): 229-238.

Journal impact factor: 9.776

Times cited: 51

42. Applegate MB, Coburn J, Partlow BP, Moreau JE, Mondia JP, Marelli B, Kaplan DL, Omenetto FG. (2015) Laser-based three-dimensional multiscale micropatterning of biocompatible hydrogels for customized tissue engineering scaffolds. *Proceedings of the National Academy of Science USA*, 112(39):12052-12057.
Journal impact factor: 11.205
Times cited: 121
News mentions in Photonics, HealthMediciNet.com, PhysOrg.com, and EurekAlert!
43. Seib FP, Coburn J, Konrad I, Klebanov N, Jones GT, Blackwood B, Charest A, Kaplan DL, Chiu B. (2015) Focal therapy of neuroblastoma using silk films to deliver kinase and chemotherapeutic agents in vivo. *Acta Biomaterialia*, 20:32-38.
Journal impact factor: 8.947
Times cited: 48
44. Brown J, Lu C, Coburn J, Kaplan DL. (2015) Impact of silk biomaterial structure on proteolysis. *Acta Biomaterialia*. 11:212-221.
Journal impact factor: 8.947
Times cited: 121
45. Coburn JM, Kaplan DL. (2015) Engineering material-drug conjugates for sustained chemotherapeutic delivery, 26(7):1212-1223.
Journal impact factor: 4.774
Times cited: 29
46. Bhattacharjee[#], Coburn J[#], Centola M[#], Murab S, Barbero A, Kaplan DL, Martin I, Ghosh S. (2015) Tissue engineering strategies to study cartilage development, degeneration and regeneration. *Advanced Drug Delivery Reviews*, 84:107-122.
Journal impact factor: 15.470
Times cited: 116
47. Franck D, Chung YG, Coburn J, Kaplan D, Estrada C, Mauney J. (2014) In vitro evaluation of bi-layer silk fibroin scaffolds for gastrointestinal tissue engineering. *Journal of Tissue Engineering*, 5:2041731414556849.
Journal impact factor: 3.494
Times cited: 24
48. Chiu B, Coburn J, Pilichowska M, Holcroft C, Seib P, Charest A, Kaplan DL. (2014) Surgery combined with controlled-release doxorubicin silk films as a treatment strategy in an orthotopic neuroblastoma mouse model. *British Journal of Cancer*. 11(4):708-15.
Journal impact factor: 7.64
Times cited: 56
49. Gibson M, Beachley V, Coburn J, Alain-Bandinelli P, Mao HQ, Elisseeff J. (2014) Tissue extracellular matrix nanoparticle presentation in electrospun nanofibers. *BioMed Research International*. Article ID 469120.
Journal impact factor: 3.411
Times cited: 39
50. Gibson M, Li H, Coburn J, Moroni L, Nahas Z, Bingham C, Yarema K, Elisseeff J. (2014) Intra-articular delivery of glucosamine for treatment of experimental osteoarthritis created by a medial meniscectomy in a rat model. *Journal of Orthopaedic Research*. 32(2):302-309.
Journal impact factor: 3.494
Times cited: 26
51. Coburn JM, Wo L, Bernstein N, Bingham CO, Yarema KJ, Elisseeff JH. (2013) Short-chain fatty acid-modified hexosamine for tissue-engineering osteoarthritic cartilage. *Tissue Engineering Part A*. 19(17-18):2035-44.
Journal impact factor: 3.845

Times cited: 17

52. Coburn JM, Yarema KJ, Elisseeff JH. (2013) Differential response of chondrocytes and chondrogenic mesenchymal stem cells to C1-OH tributanoylated hexosamines. PLOS One. 8(3):e58899.

Journal impact factor: 3.24

Times cited: 14

53. Sharma BS, Gibson M, Unterman S, Herzka DA, Cascio B, Coburn J, Hui AY, Marcus N, Gold GE, Elisseeff JH. (2013) Human cartilage repair with a photoreactive adhesive-hydrogel composite. Science Translational Medicine. 5(167):167ra6.

Journal impact factor: 17.956

Times cited: 293

54. Coburn JM, Gibson M, Monagle S, Patterson Z, Elisseeff JH. (2012) Bioinspired nanofibers mediate articular cartilage repair. Proceedings of the National Academy of Science USA. 109(25):10012-10017.

Journal impact factor: 11.205

Times cited: 227

55. Hillel AT, Nahas Z, Unterman S, Reid B, Coburn J, Axelman J, Chae J, Guo Q, Trow R, Thomas A, Hou Z, Afthinos A, Matheson C, Walker P, David N, Elisseeff J. (2011) Photoactivated composite biomaterial for soft tissue restoration in rodents and in humans. Science Translation Medicine. 3(93):93ra67.

Journal impact factor: 17.956

Times cited: 103

56. Coburn J, Gibson M, Bandalini PA, Mao HQ, Laird C, Moroni L, Elisseeff JH. (2011) Biomimetics of the extracellular matrix: An integrated three-dimensional fiber-hydrogel composite biomaterial. Smart Materials and Structures. 7(3):213-222.

Journal impact factor: 3.18

Times cited: 144

57. Messana J, Hwang N, Coburn J, Elisseeff J, Zhang Z. (2008) Size of embryoid body influences chondrogenesis of mouse embryonic stem cells. Journal of Tissue Engineering and Regenerative Medicine. 2(8):499-506.

Journal impact factor: 3.963

Times cited: 72

58. Agrawal SK, Sanabria-DeLong N, Coburn J, Tew GN, and Bhatia SR. (2006) Novel drug release profiles from micellar solutions of PLA-PEO-PLA triblock copolymer. Journal of Controlled Release, 112:64-71.

Journal impact factor: 9.776

Times cited: 156

Peer-Reviewed Conference Proceedings

59. Taylor JS, Yavuz B, Zeki J, Ikegaki N, Coburn JM, Harrington K, Shimada H, Kaplan DL, Chiu B. (2019) Optimizing sustained release local therapy: single versus dual chemotherapy for the treatment of neuroblastoma. Journal of the American College of Surgeons. 229(4): S210-S211.
60. Agrawal SK, Sanabria-DeLong N, Jemian PR, Coburn JM, Tew GN, and Bhatia SR. (2005) Micro- to nano-scale structure and drug release behavior of solutions and hydrogels of poly(lactide)-poly(ethylene oxide)-poly(lactide) triblock copolymers. Materials Research Society Symposium Proceedings. 897:75-80.

Book Chapters

1. Montalbán MG, Carissimi G, Lozano-Pérez AA, Cénis JL, Coburn JM, Kaplan DL, VÍllora G. (2019) Biopolymer nanoparticle synthesis in ionic liquids. Rahman MM (Ed) Recent Advances in Ionic Liquids. IntechOpen (an open access peer-reviewed chapter).

Times cited: 12

2. Coburn JM, Elisseff JH. (2017) Engineering cartilage: From materials to small molecules, 2nd edition. Huang NF, L'Heureux N, Li S (Eds.), Stem Cells and Tissue Engineering (pp.181-201). Hackensack, NJ: World Scientific Corp.
 3. Coburn JM, Elisseff JH. (2011) Engineering cartilage: From materials to small molecules. Li S, L'Heureux N, Elisseff JH (Eds.), Stem Cells and Tissue Engineering (pp.181-201). Hackensack, NJ: World Scientific Corp.
- Times cited: 2

Editorial Articles

1. Coburn JM, Kaplan DL. (2019) Editorial overview – Materials Engineering: Harnessing structural hierarchy in bio-derived/bio-inspired materials for biomedical applications. Current Opinion in Chemical Engineering, 24: A1-A3.

13. Fellowships and Grants

Total received for PI Coburn: \$1.01 million

Total funding including co-PI's: \$2.45 million

Prior to WPI: \$0.26 million

Grant Funding Received

Current

1. REU Site: Integrated Bioengineering Research, Education, and Outreach Experiences at Worcester Polytechnic Institute
 Role: PI (Co-PI: Kristen Billiar)
 Agency: National Science Foundation
 Period: 09/01/22-08/31/25
 Total Cost: \$413,454 (53.77% IDC - \$48,154)
2. Injectable Hydrogel Scaffold with In Situ Aligning Fiber Architecture to Orient Cross-Lesion Axonal Regeneration in Traumatic Spinal Cord Injury (SCI)
 Role: PI
 Agency: Bryon Riesch Paralysis Foundation
 Period: 07/01/2022-06/30/2023
 Total Cost: \$43,059 (0% IDC)
3. Development of controlled release delivery of anti-GD2 antibody
 Role: Co-PI (PI: Bill Chiu, Stanford University)
 Agency: United Therapeutics (subaward through Stanford University)
 Period: 03/01/21 - 02/28/23
 Total Cost: \$300,000 with \$6,923 cost share (\$141,588 to WPI with \$6,923 cost share, 53.77% IDC - \$49,510)
4. COVID Relief Funds for graduate student summer support, Summer 2021
 Role: PI
 Agency: Women's Impact Network
 Period: 07/01/21 – 06/30/2022
 Total Cost: \$4,000
5. MRI: Acquisition of a Time-Resolved Spectrometer Spanning UV to THz Spectral Range for Investigations in Photonics, Energy, and Therapeutics
 Role: Co-PI (PI: Lyubov Titova; Other Co-PI: Ronald L. Grimm, Christopher R. Lambert, Winston O. Soboyejo)
 Agency: National Science Foundation Division of Materials Research
 Period: 09/01/2020 – 08/31/25
 Total Cost: \$663,380 with \$222,263 cost share (53.77% IDC - \$62,043)
6. Graduate Fellowship Support from Aberdale Family Graduate Fellowship (to Coburn Lab)

Role: PI
Agency: Aberdale Family Foundation
Period: August 15, 2020 – August 14, 2023 (with option to extend)
Total Cost: \$180,000

7. The Belmont Street Community School SEED (STEM Education Equity Development) Program
Role: PI (Co-I: Tiffany Butler and Katherine Chen)
Agency: WPI Women's Impact Network
Period: July 2020 – June 2023
Total Cost: \$ 17,540
8. Development methods for delivery and retention of therapies with oncological applications
Role: PI
Agency: Boston Scientific
Period: 01/01/18-12/30/22
Total Cost: 54,000 (53.77% IDC - \$18,875)

Past

9. Young Investigator Fellowship Mentorship and Research Conference Opportunities for Research
Role: PI
Agency: WPI Women's Impact Network
Period: 2019
Total Cost: \$ 1,500
10. Site-directed genotypic targeting of pancreatic neuroendocrine tumors
Role: Co-PI (PI: Xavier Keutgen)
Agency: NIH Translational Research Program: Neuroendocrine Tumor SPORE program Career Enhancement Award (subaward through University of Chicago)
Period: 09/01/2018 – 08/31/2019
Total Cost: \$75,000 (\$12,560 to WPI, 0% IDC)
11. Modeling the effects of stroma on clear cell renal cell carcinoma,
Role: Co-PI (PI: Leif Oxburgh; Other Co-PI: Sunder Sims-Lucas, UPitt)
Agency: Department of Defense Kidney Cancer Research Program (subaward through Rogosin)
Period: 09/01/18 – 08/31/21
Total Cost: \$400,000 (\$88,380 to WPI, 53.07% IDC - \$30,642)
12. New optically clear functionalized materials from microbial cellulose
Role: Co-PI with Eric Young
Agency: WPI Dean of Engineering Seed Grants
Period: 2018-2019
Total Cost: \$5,000
13. Development of Controlled Release Delivery of Anti-GD2 Antibody
Role: Co-PI (PI: Bill Chiu, University of Illinois, Chicago)
Agency: United Therapeutics (subaward through University of Illinois, Chicago)
Period: 07/01/16 - 06/30/18
Total Cost: \$97,500 (\$42,391 to WPI, 30% IDC - \$9,782)
14. Three-dimensional human kidney tissue system for studying renal diseases
Role: PI
Agency: National Institutes of Health
Period: 09/01/13 - 06/30/16
Total Cost: \$158,538 (Fellowship - no IDC)
15. Chondroitin sulfate-fiber hydrogels for cartilage tissue engineering
Role: PI
Agency: National Institutes of Health

Period: 01/01/10 - 01/31/12

Total Cost: \$101,650 (Fellowship - no IDC)

Proposals or Letters of Intent Pending

1. Research proposal submitted to the National Institutes of Health (R15), “Modeling fibroblast investment in neuroblastoma for drug screening,” PI: Coburn, 01/01/23-12/31/25, \$458,155 (53.77% IDC - \$139,256).
2. Invited proposal submitted to the North American Spine Society, “Injectable Hydrogel Scaffold with In Situ Aligning Fiber Architecture to Orient Cross-Lesion Axonal Regeneration in Traumatic Spinal Cord Injury (SCI),” PI: Jeannine M. Coburn, 01/03/2023 – 01/02/2025, \$74,249 (15% IDC - \$9,685).

Proposals or Letters of Intent Submitted but Denied

1. Research proposal submitted to the Department of Defense, Peer Reviewed Medical Research Program, Combat Readiness-Medical Research Program, “Antimicrobial peptide loaded wound dressings for treating acute and chronic infections and promoting tissue regeneration,” PI: Jeannine M. Coburn, Co-I: Terri Camesano, Marsha Rolle, Elizabeth Stewart, 07/01/2022-06/30/2024, \$1,799,807 (53.77% IDC - \$407,108).
2. Letter of intent submitted to A Collaborative Pediatric Research Awards Program, “Modeling tumor associated macrophages for neuroblastoma drug screening”, PI: Jeannine M. Coburn, 07/01/2022-06/30/2024, \$122,653 (0% IDC).
3. Research proposal submitted to the National Institutes of Health (R03), “Development of in vitro 3D neuroblastoma models with macrophages for drug testing”, PI: Jeannine M. Coburn, 05/15/22-05/14/24, \$147,257 (53.77% IDC - \$47,257).
4. Research proposal submitted to UMass Center for Clinical and Translational Science and WPI PILOT PROJECT PROGRAM (PPP), “Development of a Rapid and Reusable SARS-CoV-2 RNA Detection Assay”, PI: Jeannine M. Coburn, Co-I: Suzanne Scarlata, 05/01/2021-04/30/2022, \$25,000 (0% IDC).
5. Research proposal submitted to the National Institutes of Health (R01), “Combinatorial mechanisms of sulfate glycosaminoglycan-based drug delivery systems for cancer treatment,” PI: Jeannine M. Coburn, 10/01/21-09/30/26, \$1,993,032 (53.77% IDC - \$430,484).
6. Research proposal submitted to the National Institutes of Health (R15), “In vitro, scaffolded models of neuroblastoma for studying fibroblast investment and drug resistance,” PI: Coburn, 09/01/21-08/31/23, \$441,469 (53.77% IDC - \$141,469).
7. Letter of intent submitted to the National Institute for Innovation in Manufacturing Biopharmaceuticals, “Development of a Rapid and Reusable Coronavirus RNA Detection Assay,” PI: Jeannine M. Coburn, Co-I: John P. Harran (UMMS), 2021-2022, \$253,442 (53.77% IDC - \$53,317).
8. Research proposal submitted to the Massachusetts Life Science Center, “Development of a rapid and reusable point of care test for SARS-CoV-2 RNA detection,” PI: Jeannine M. Coburn, Co-I: Suzanne Scarlata, 12/01/2020 – 06/30/2021, \$45,159 (53.77% IDC - \$15,791).
9. REU site proposal submitted to the National Science Foundation, “REU Site: Integrated Bioengineering Research, Education, and Outreach Experiences at Worcester Polytechnic Institute,” PI: Jeannine M. Coburn, Co-PI: Kristen Billiar, 09/01/21-08/31/24, \$434,347 (53.77% IDC - \$52,538).
10. Accelerating Coronavirus Testing Solutions proposal submitted to the Massachusetts Life Sciences Center “Development of a rapid and reusable point of care test for SARS-CoV-2 RNA detection,” PI: Jeannine M. Coburn, Co-PI: Suzanne F. Scarlata, 12/01/2020 – 06/30/21, \$45,159 requested and \$31,877 additional in cost-share (53.77% IDC - \$15,791).
11. Research proposal submitted to the National Science Foundation, “CAREER: Development of Bacterial-Derived Hybrid-Cellulose Biomaterials with Multi-Functional Properties,” PI: Jeannine M. Coburn 01/01/21-12/31/25, \$543,867 (53.77% IDC - \$168,627).
12. Research proposal submitted to the National Institutes of Health (R01), “Combinatorial mechanisms of sulfate glycosaminoglycan-based drug delivery systems for cancer treatment,” PI: Jeannine M. Coburn, 10/01/20-09/30/23, \$1,821,977 (53.77% IDC - \$449,969).

13. Research proposal submitted to the National Science Foundation, “FMSF: Designer biomaterials with Synthetic Biology,” PI: Eric M. Young, Co-PI: Terri A. Camesano, Jeannine M. Coburn, Marsha W. Rolle, 01/01/21-12/31/25, \$499,998 (53.77% IDC - \$144,373).
14. Research proposal submitted to the National Institutes of Health (R15), “In vitro, scaffolded models of neuroblastoma for studying fibroblast investment and drug resistance,” PI: Coburn, 10/01/20-09/30/23, \$442,020 (53.77% IDC - \$142,020).
15. Research proposal submitted to the Department of Defense, Peer Reviewed Cancer Research Program Idea Award with Special Focus, “Modeling Cancer Associated Fibroblasts in Neuroblastoma,” PI: Jeannine M. Coburn, 03/01/2020-02/28/2023, \$400,000 (53.77% IDC - \$199,657).
16. Research proposal submitted to the National Science Foundation, “CAREER: Development of Bacterial-Derived Hybrid-Cellulose Biomaterials with Multi-Functional Properties,” PI: Jeannine M. Coburn 01/01/20-12/31/24, \$551,381 (53.77% IDC - \$171,884).
17. Educational proposal submitted to the Boston Scientific Foundation. “Belmont Community School STEM Education Program,” Co-PI: Tiffany A. Butler and Jeannine M. Coburn, June 1, 2020-May 30, 2021, (\$17,768).
18. Research proposal submitted to Edward Mallinckrodt, Jr Foundation, Mallinckrodt Grant. “Modeling the Tumor Microenvironment in Neuroblastoma for Pre-Clinical Drug Screening,” PI: Jeannine M. Coburn 01/01/2020-12/31/23, \$180,000 (0% IDC).
19. Research proposal submitted to Neuroendocrine Tumor SPORE program Career Enhancement Award (through University of Iowa, NIH Translational Research Program), “Site-directed genotypic targeting of pancreatic neuroendocrine tumors,” PI: Xavier Keutgen, Co-I: Jeannine M. Coburn, 09/01/19 – 08/31/20, \$50,000 (\$8,726 to WPI, 53.77% IDC - \$3,051).
20. Research proposal submitted to VHL Alliance Competitive Research Grant Program, “A novel drug delivery mechanism to target pancreatic neuroendocrine tumors with VHL mutations,” PI: Xavier Keutgen, Co-I: Jeannine M. Coburn, 01/01/20 – 12/31/22, \$150,000 (\$24,650 to WPI).
21. Research proposal submitted to NETRF pilot project grant, “Influence of Radiation Therapy on NET cells and their microenvironment,” PI: Xavier Keutgen, Co-I: Jeannine M. Coburn, 09/01/19 – 08/31/21, \$100,000 (\$12,000 to WPI).
22. Research proposal submitted to NANETS BTSI career development award, “A novel drug delivery mechanism to target pancreatic neuroendocrine tumors,” PI: Xavier Keutgen, Co-I: Jeannine M. Coburn, 09/01/19 – 08/31/21, \$100,000 (\$11,736 to WPI, 5% IDC - \$559).
23. Research proposal submitted to Alex’s Lemonade Stand Foundation ‘A’ Award, “Modeling the Tumor Microenvironment of Neuroblastoma;” PI: Jeannine M. Coburn, 02/01/20-01/31/24, \$800,000 (0% IDC).
24. Research proposal submitted to the National Science Foundation, “DMREF: Computational design and synthesis of next-generation polysaccharides from organisms and enzymes,” PI: Jeannine M. Coburn, Co-I: Nima Rahbar, Suzanne Scarlata, Eric Young, 09/01/19-08/31/23, \$1,750,000 (53.77% IDC - \$532,227)
25. Research proposal submitted to the St. Baldrick’s Foundation Career Development Award, “Targeting tumor associated macrophages and immune cells in neuroblastoma,” PI: Jeannine M. Coburn, 07/01/19-06/30/22, \$221,657 (0% IDC).
26. Research proposal submitted to ARPA-E, “Self-healing enzymatic concrete,” PI: Nima Rahbar, Co-I: Curtis Abel, Jeannine M. Coburn, Suzanne Scarlata, 09/01/19-08/31/21, \$1,112,250 (53.77% IDC – \$365,518, budgeted to Coburn: \$178,822 inclusive of \$52,863 IDC)
27. Research proposal submitted to NETRF pilot project grant, “Site-directed genotypic targeting of pancreatic neuroendocrine tumors,” PI: Xavier Keutgen, Co-I: Jeannine M. Coburn, 09/01/18 – 08/31/19, \$100,000 (\$19,122 to WPI, 0% IDC).
28. Letter of intent submitted to the American Association for Cancer Research- AACR NextGen Grants for Transformative Cancer Research Grant, “Modeling the neuroblastoma microenvironment for personalized medicine,” PI: Jeannine Coburn, 04/01/19 – 03/31/22, \$450,000.

29. Research proposal submitted to the Neuroendocrine Tumor Research Foundation-AACR Grant, “*In-vivo* genotype-specific targeting of pancreatic neuroendocrine tumors,” PI: Xavier Keutgen, Co-I: Jeannine M. Coburn, 07/01/18 – 06/30/20, \$250,000 (\$46,421 to WPI, 0% IDC).
30. Research proposal submitted to NANETS Basic/Translational Science Investigator award, “Site-directed genotypic targeting of pancreatic neuroendocrine tumors,” PI: Xavier Keutgen, Co-I: Jeannine M. Coburn, 09/01/18 – 08/31/19 \$100,000 (\$11,450 to WPI, 0% IDC).
31. Research proposal submitted to the St. Baldrick’s Foundation Career Development Award, “Controlled release targeting tumor-associated macrophages in neuroblastoma,” PI: Jeannine M. Coburn, 07/01/18-06/30/21, \$221,657.
32. Research proposal submitted to Smith Family Awards Program for Excellence in Biomedical Research, “Targeting tumor associated macrophages with local delivery of sustained release hydrogels for neuroblastoma treatment,” PI: Jeannine M. Coburn, 12/01/18-11/30/2021, \$300,000 (IDC: \$4,762).
33. Research proposal submitted to Rush Translational Sciences Consortium Swim Across America Pilot Projects Program, “In-vivo genotype-specific targeting of pancreatic neuroendocrine tumors,” PI: Xavier M. Keutgen, Co-I: Jeannine M. Coburn, Abde Abukhdeir, Carl Maki, 07/01/18-06/30/19, \$50,000 (\$6,500 to WPI).
34. Research proposal submitted to the Department of Defense, Peer Reviewed Medical Research Program Discovery Award, “Sustained release of FGF-2 from plant cell-derived matrices for rapid angiogenesis,” PI: Jeannine M. Coburn, \$200,000 (53.77% IDC - \$88,419).
35. Research proposal submitted to Edward Mallinckrodt, Jr Foundation, Mallinckrodt Grant. “Modeling the Tumor Microenvironment in Neuroblastoma for Pre-Clinical Drug Screening,” PI: Jeannine M. Coburn 01/01/2019-12/31/22, \$180,000.
36. Educational proposal submitted to the Boston Scientific Foundation. “Belmont Community School STEM Education Program,” Co-PI: Tiffany A. Butler and Jeannine M. Coburn, June 1, 2019-May 30, 2020, (\$20,810.00).
37. Educational workforce development proposal submitted to Biofab USA. “Biofab Academy @WPI,” PI: Kristen Billiar, Co-PI: Jeannine M. Coburn and Catherine Whittington, 2018-2019, \$392,699.47 (cost share: \$197,072.23).
38. Research proposal submitted to the National Institutes of Health (R15), “Targeting tumor-associated macrophages in neuroblastoma with intratumoral release systems,” PI: Coburn, 10/01/18-09/30/21, \$437,046 (53.07% IDC - \$137,048).
39. Letter of Intent submitted to A Collaborative Pediatric Cancer Research Awards Program, “Local sustained release delivery for targeting tumor-associated macrophages,” PI: Jeannine M. Coburn, 07/01/18 – 06/31/19, \$100,000 (0% IDC).
40. Research proposal submitted to the National Institutes of Health (R21), “*In vitro* scaffold-drive regulation of tumor environments and immune cell response,” PI: Jeannine M. Coburn, 04/01/18 - 03/30/21, \$588,366 (53.07% IDC - \$188,366).
41. Research proposal submitted to Pharmaceutical Research and Manufacturers of America Foundation, Pharmaceuticals Research Starter Grant. “Polymer-drug conjugates for PD-1 blockade,” PI: Jeannine M. Coburn. 01/01/18-12/31/18, \$100,000 (0% IDC).
42. Research proposal submitted to the National Institutes of Health (R21), “Targeting the PD-1/PD-L1 pathway with polymer-drug conjugates,” PI: Jeannine M. Coburn, 10/01/17 - 09/31/19, \$412,840 (57% IDC - \$137,840).
43. Research proposal submitted to the WPI Women’s Impact Network, “In vitro tumor modeling: Tumor-associated macrophage and the tumor microenvironment,” PI: Jeannine M. Coburn, (2017-2018), \$16,000 (internal funding).
44. Research proposal submitted to the National Institutes of Health (R21), “*In vitro* scaffold-drive regulation of tumor environments and immune cell response,” PI: Jeannine M. Coburn, 07/01/17 - 06/30/20, \$599,192 (57%IDC - \$199,192).

Student Fellowships/Grants Received

1. Alycia Abbott, 2021, Koerner Family Foundation Fellowship (\$10,000)
2. Carolina Villarreal, 2018-2019, ImagineIF grant, Boston Scientific (Internal competition), “EBUS for the delivery of immunotherapy” (\$100,000)
3. Elzani van Zyl, 2020-2021, GROW: Graduate Research Organization for Womxn in STEM
4. Alycia Abbott, 2018-2019, Steadman Smith Fellowship (One year full stipend and tuition)

Student Fellowships Submitted

Student Fellowships Submitted but denied

1. American Dissertation Fellowship submitted to the American Association of University Women, Elizabeth van Zyl, November 2020.
1. Graduate Fellowship submitted to the National Institutes of Health Ruth L. Kirschstein Predoctoral Individual National Research Service Award (F31), Katelyn Mistretta, August 2020.
2. Graduate Fellowship submitted to National Science Foundation Graduate Research Fellowship Program, Katelyn Mistretta, Fall 2019.
3. Graduate Fellowship submitted to Ford Foundation, Alycia Abbott, Fall 2017.
4. Graduate Fellowship submitted to National Science Foundation Graduate Research Fellowship Program, Alycia Abbott, Fall 2017.
5. Graduate Fellowship submitted to Ford Foundation, Alycia Abbott, Fall 2016.

Student Travel Grants

1. Alycia Abbott, 2020 BMES Career Development Award.
2. Kimberly J. Ornell, 2019 to Seattle, Washington for rapid fire talk and poster presentation at the Society for Biomaterials Meeting. *Funded by Provost’s Office Grad Student Travel Award.*
3. Alycia Abbott, 2018-2019, WYIF travel funds – mentorship program.
4. Kimberly J. Ornell, 2018 to Atlanta, Georgia for rapid fire talk and poster presentation at the Society for Biomaterials Meeting. *Funded by Provost’s Office Grad Student Travel Award.*

Workshops on Grant Writing

I have attended workshops to enhance my grant writing skills and increase my potential for funding.

Workshop Title	Date
Training Workshop Funding for Early Career Investigators (WPI, RSI, Worcester, MA)	December 4, 2019
CAREER Workshop (WPI, RSI, Worcester, MA)	April 26, 2018
NIH Writing Workshop (UMMS, Worcester, MA)	May 10, 2017

14. Professional Presentations

In reverse chronological order. Undergraduates in *italics*, graduate students underlined. Asterisks (*) indicate presentations of work performed at WPI.

Invited Speaker

1. * Coburn JM. In Vitro Engineering biomaterials for cancer treatment and in vitro cancer modeling. University of Notre Dame, March 15, 2022.
2. * Coburn JM. In Vitro Engineered Models of Solid Tumors using Porous Silk Scaffolds. University of Massachusetts Amherst, November 9, 2021.
3. * Coburn JM. In Vitro Engineered Models of Solid Tumors using Porous Silk Scaffolds. University of Pittsburgh, November 5, 2020.

4. * Coburn JM. Using Biomaterials for Cancer Treatment and Modeling. University of Arizona, Society for Biomaterials Student Chapter, October 30, 2020.
5. * Coburn JM. Engineered Models of Pediatric Neuroblastoma, Rutgers, The State University of New Jersey, Piscataway, NJ. November 18, 2019.
6. * Coburn JM. Designer Cellulosic Biomaterials. NanoTech Conference and Expo at TechConnect World Innovation, Boston, MA. June 17-19, 2019.
7. * Coburn JM, Abel C, Dodson L. High Engagement Ethics Learning of Drug Delivery Technologies. KEEN Wine and Cheese Reception, Worcester, MA. October 5, 2017.
8. * Coburn JM. Functional Biomaterials for Tissue Engineering and Drug Delivery. Houston Methodist Research Institute, Houston, TX. February 13, 2017.
9. * Coburn JM. Novel Drug Delivery. TechSandBox Life Science Special Interest Group. Hopkinton, MA. January 23, 2017.
10. Coburn JM. Functional biomaterials for tissue engineering and drug delivery. Worcester Polytechnic Institute, Department of Biomedical Engineering Seminar, Worcester, MA, January 27, 2016.
11. Coburn JM. Biomaterial approaches to tissue engineering and drug delivery. University of Massachusetts, Department of Chemical Engineering Seminar, Lowell, MA, February 24, 2015.
12. Coburn J, Elisseeff JH. Photopolymerization in tissue engineering and regenerative medicine. 29th International Conference of Photopolymer Science and Technology, Chiba, Japan, June 26-29, 2012
Invited keynote lecture
13. Coburn J, Gibson M, Elisseeff J. 3,4,6-O-Bu₃GlcNAc effects on normal and IL-1 β treated chondrocytes glucosamine: Inspiring new treatments for osteoarthritis and cartilage tissue engineering. Baltimore-Washington Area Glycobiology Interest Group, Baltimore, MD, January 12, 2010.

Peer-Reviewed Abstracts (Podium Presentations)

1. * van Zyl EM, Coburn JM. Development and characterization of novel transparent bacterial derived cellulose. Society for Biomaterials Annual Meeting, April 27-30, 2022.
2. * Mistretta KS, Coburn JM. Three-dimensional cancer-immune co-culture model using lyophilized silk fibroin scaffolds. Society for Biomaterials Annual Meeting, April 27-30, 2022.
3. * Abbott A, Gravina ME, Vandadi M, Rahbar N, Coburn JM. Influence of lyophilization primary drying time and temperature on porous silk scaffold fabrication for biomedical applications. Society for Biomaterials Annual Meeting, April 27-30, 2022.
4. Coburn JM. Social Determinants of Health and Engineering Design: Implementing a Diabetes Module into Undergraduate Coursework. 2021 American Society for Engineering Education Northeast Conference, Worcester, MA, October 21 – 23, 2021.
5. * van Zyl E, Coburn JM. Bacterial Derived Cellulose with Tunable Optical Clarity for Wound Dressing Applications. Society for Biomaterials Annual Meeting, Virtual. April 20-23, 2021.
6. * Wojnowski M, Coburn JM. Leveraging the chemomechanical tunability of silk fibroin in a functionally modular scaffold design. Society for Biomaterials Annual Meeting, Virtual. April 20-23, 2021.
7. * Abbott A, Gravina M, Coburn JM. Impact of Drying Time and Temperature on Lyophilized Silk Fibroin Scaffold Structural Properties. Materials Research Society Virtual Meeting, November 27 – December 4, 2020.
8. * Ornell KJ, Mistretta KS, Ralston CQ, Coburn JM. Stacked tumor model for cell-driven hypoxia using silk scaffolds. World Biomaterials Congress Virtual Meeting, December 11-14, 2020.
9. * Carnes M, Gonyea C, Mooney R, Njihia J, Coburn J, Pins G. Towards the Development of a Fibrin Microthread Scaffold for the Treatment of Volumetric Muscle Loss. Biomedical Engineering Society Annual Virtual Meeting, October 14-17, 2020.
10. Taylor JS, Yavuz B, Zeki J, Ikegaki N, Coburn JM, Harrington K, Shimada H, Kaplan DL, Chiu B. Optimizing sustained release local therapy: single versus dual chemotherapy for the treatment of neuroblastoma. Advances in Neuroblastoma Research, Amsterdam, Netherlands. May 11 - 14, 2020.

11. * Van Zyl E, Young EM, Coburn JM. Characterization of Transparent Bacterial-Derived Cellulose Produced with Alternative Carbon Sources. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16 – 19, 2019.
12. * Gonyea C, Mooney R, Carnes M, Coburn J, Pins G. Enzymatic Crosslinking Strategy for Fibrin Microthreads Enables Tunable Mechanical Properties. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16 – 19, 2019.
13. Taylor JS, Sha L, Ikegaki N, Zeki J, Deaton R, Harris J, Coburn J, Sethi A, Shimada H, Kapla DL, Gann P, Chiu B. Replicating and identifying large cell neuroblastoma using high-dose intra-tumoral chemotherapy and automated digital analysis. 52nd meeting of the Pacific Association of Pediatric Surgeons, Christchurch, New Zealand. March 10-14, 2019.
14. Yavuz B, Zeki J, Coburn J, Kaplan DL, Chiu B. Neuroblastoma tumor growth suppression with locally implanted cisplatin-loaded reservoirs. 14th Annual Academic Surgical Congress, Houston, TX. February 5-7, 2019.
15. * Taylor JS, Zeki J, Ornell K, Coburn J, Shimada H, Ikegaki N, Chiu B. Down-regulation of MYCN protein by CX-5461 leads to neuroblastoma tumor growth suppression. American Academy of Pediatrics National Conference and Exhibition, Orlando, FL. November 2-6, 2018.
16. * Collin JH, van Zyl E, Cosio A, Brogan G, Chico L, Rozen A, Thomson E, Coburn JM, Young EM. Third-generation sequencing of microbes isolated from fermented beverages. MassMyco Meeting, Cambridge, MA. October 20, 2018.
17. * Collin JH, van Zyl E, Cosio A, Brogan G, Chico L, Rozen A, Thomson E, Coburn JM, Young EM. Third-generation sequencing of microbes isolated from fermented beverages. American Society for Microbiology Conference on Rapid Applied Microbial Next-Generation Sequencing and Bioinformatic, Washington, DC. September 23-26, 2018.
18. * Coburn JM, Phan N, Wright T, Xu J. Plant cell line-derived scaffolds for three-dimensional cell culturing. BMES Advanced Biomanufacturing SIG meeting, Worcester, MA. August 23-24, 2018.
19. * Ikegaki N, Zeki J, Coburn C, Ornell K, Harris J, Shimadda H, Chiu B. Halofuginone down-regulates MYCN protein and suppresses neuroblastoma tumor growth. Palm Desert, CA. May 3-6, 2018.
20. Yavuz B, Harrington K, Coburn JM, Chiu B, Kaplan DL. Silk carriers for local delivery of cisplatin: In vitro release kinetics. Society for Biomaterials Annual Meeting, Atlanta, GA. April 11-14, 2018.
21. * Ornell KJ, Phan NV, Linthicum WH, Lozada D, Coburn JM. Methacrylation of chondroitin sulfate for drug delivery applications. Society for Biomaterials Annual Meeting, Atlanta, GA. April 11-14, 2018.
22. Zeki J, Taylor JS, Yavuz B, Coburn J, Ikegaki N, Kaplan D, Chiu B. Disseminated injection of vincristine-loaded silk gel improves the suppression of neuroblastoma tumor growth. Central Surgical Association Annual Meeting, Columbus, OH. March 15-17, 2018.
23. Harris JC, Yavuz B, Zeki J, Coburn J, Ikegaki N, Levitin D, Kaplan D, Chiu B. Etoposide loaded silk wafers slow neuroblastoma tumor growth. 13th Annual Academic Surgical Congress. Jacksonville, FL. January 30 – February 1, 2018.
24. Coburn JM, Jadhav S, Kimmerling EP, Cleaver C, Carroll TJ, Oxburgh LH, Kaplan DL. Characterization and modification of 3D silk scaffolds for kidney tissue engineering. Tissue Engineering and Regenerative Medical International Society, San Diego, CA. December 11, 14, 2016.
25. Coburn JM, Na E, Cunningham R, Kaplan DL. Mechanism of cationic drug binding and release from silk films for oncology therapeutics – Selected for oral presentation of poster. US-Japan Symposium on Drug Delivery Systems. Maui, HI, December 16-21, 2015.
26. Harris JC, Coburn J, Poirier J, Kaplan DL, Chiu B. Intra-tumoral implantation of vincristine-loaded sustained-release silk sponge is effective in tumor control in an orthotopic neuroblastoma murine model. Surgical Forum, American College of Surgeons, Annual Clinical Congress Meeting, Chicago, IL, October 4-8, 2015.
27. Harris JC, Coburn J, Poirier J, Kaplan DL, Chiu B. Intra-tumoral implantation of vincristine-loaded sustained-release silk sponge is effective in tumor control in an orthotopic neuroblastoma murine model

65th Annual Scientific Meeting, Illinois Chapter of the American College of Surgeons, Peoria, IL, June 18-20, 2015.

28. Harris JC, Coburn J, Kajdacsy-Balla A, Kaplan DL, Chiu B. Intra-tumoral implantation of vincristine-loaded sustained-release silk sponge is effective in tumor control in an orthotopic neuroblastoma murine model Pacific Association of Pediatric Surgeons, 48th Annual Meeting, Jeju, Korea, May 17-21, 2015.
29. Harris JC, Chiu B, Coburn J, Pilichowska M, Seib FP, Charest A, Kaplan DL. Surgical resection combined with application of doxorubicin-loaded sustained release silk film as a treatment strategy in an orthotopic xenograft neuroblastoma mouse model. University of Illinois at Chicago, College of Medicine Research Forum, November 21, 2014.
30. Coburn JM, Marelli B, Omenetto FG, Kaplan DL. Tailoring Silk Fibroin Degradation using Embedded Proteolytic Enzymes. Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 22-25, 2014.
31. Chiu B, Coburn J, Seib P, Konrad I, Blackwood B, Pilichowska M, Charest A, Kaplan DL. Local chemotherapeutic treatment of neuroblastoma using controlled release silk films in an orthotopic mouse model. American Academy of Pediatrics National Conference and Exhibition, San Diego, CA, October 11-14, 2014.
32. Townsend KL, Lynes, M, Coburn J, Pritchard E, Kwon YM, Huang T, Kaplan DL, Tseng YH. Silk-mediated sustained delivery of bone morphogenic protein 7 (BMP7) to subcutaneous white adipose depot leads to browning and reversal of obesity. American Diabetes Association 74th Scientific Session, San Francisco, CA, June 13-17, 2014.
33. DesRochers T, Jandhyala DM, Palma E, Coburn J, Leong J, Kaplan DL. A 3-dimensional renal tubule organ model for studying shiga toxin-mediated disease. American Society of Microbiology, Boston, MA, May 17-20, 2014.
34. Chiu B, Coburn J, Seib P, Charest A, Kaplan DL. Surgical Resection Combined with Application of doxorubicin-loaded sustained release silk film as a treatment strategy in an orthotopic xenograft neuroblastoma mouse model. American College of Surgeons' 99th Clinical Congress, Washington, DC, October 6-10, 2013.

Peer-Reviewed Abstracts (Poster Presentations)

1. * Villarreal-Otalvaro C, Coburn JM. Gellan gum and trilysine hydrogels with tunable mechanical properties for drug delivery. Society for Biomaterials Annual Meeting, April 27-30, 2022.
2. * Mistretta KS, Coburn JM. Three-dimensional cancer-immune co-culture model using lyophilized silk fibroin scaffolds. Society for Biomaterials Annual Meeting, April 27-30, 2022.
3. * Wilde M, van Zyl E, Coburn JM. Bacterial derived cellulose cleaning methods for wound dressing applications. Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6 – 9, 2021.
4. * Keang T, Mistretta K, Coburn JM. Chondroitin sulfate-methacrylate applications for anthracycline binding and sustained release. Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6 – 9, 2021.
5. * Abbott AA, Gravina ME, Coburn JM. Effect of Lyophilization Drying Time and Temperature on Silk Fibroin Scaffold Structural Properties. World Biomaterials Congress Virtual Meeting. December 11-14, 2020.
6. * van Zyl E, Coburn JM. Characterization of Transparent Bacterial-Derived Cellulose Produced with Alternative Carbon Sources. World Biomaterials Congress Virtual Meeting. December 11-14, 2020.
7. * Keating KW, van Zyl E, Collins JH, Coburn JM, Young EM. Leveraging Genome-Scale Metabolic Models and Synthetic Biology Tools to Engineer UDP-Sugar Metabolism and Exopolysaccharide Synthesis in *Komagataeibacter xylinus*. American Institute for Chemical Engineers Annual Meeting, San Francisco, CA. November 15-20, 2020.
8. * Gravina ME, Abbott AA, Coburn JM. Development of an image analysis technique to quantify silk scaffold pore size. Biomedical Engineering Society Annual Meeting, Virtual, October 14 – 17, 2020.

9. *[Abbott AA](#), Bond K, Sims-Lucas S, Oxburgh L, Coburn JM. Mechanically matched scaffolds for 3D clear cell renal cell carcinoma modeling. Biomedical Engineering Society Annual Meeting, Virtual, October 14 – 17, 2020.
10. Taylor JS, Yavuz B, Zeki J, Ikegaki N, Coburn JM, Harrington K, Shimada H, Kaplan DL, Chiu B. Optimizing sustained release local therapy: single versus dual chemotherapy for the treatment of neuroblastoma. American College of Surgeons 2019 Clinical Congress, San Francisco, CA. October 27–31, 2019.
11. * [Abbott AA](#), Coburn JM. Development of 3D in vitro Liver Model Through HepaRG Maturation on Silk Fibroin Scaffolds. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16 – 19, 2019.
12. * [Njihia J](#), [Carnes M](#), Coburn J, Pins G. Characterization of Dityrosine Bonds and Degradation Rates for Enzymatically Crosslinked Fibrin Microthreads. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16 – 19, 2019.
13. * [Ralston CQ](#), [Ornell KJ](#), [Mistretta KS](#), Coburn JM. Therapeutic Efficacy of Etoposide and Tirapazamine on 3D Scaffolded Neuroblastoma. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16 – 19, 2019.
14. * [Keutgen XM](#), [Ornell KJ](#), Vogl A, Tierney J, Chivukula S, Coburn JM. Chondroitin Sulfate Hydrogels: A novel drug-delivery system for localized and metastatic pancreatic neuroendocrine tumors. Annual Meeting of the Americas Hepato-Pancreato-Biliary Association, Miami Beach, FL. March 20-24, 2019.
15. * [Phan N](#), Wright T, Xu J, Coburn JM. Matrices from genetically engineered plant cell lines as three-dimensional scaffolds for cell growth. Society for Biomaterials Annual Meeting, Seattle, WA. April 3-6, 2019.
16. * [Ornell KJ](#), [Newman E](#), Coburn JM. Using scaffold neuroblastoma to model cell-driven hypoxia. Society for Biomaterials Annual Meeting, Seattle, WA. April 3-6, 2019.
17. Yavuz B, Harrington K, Coburn JM, Chiu B, Kaplan DL. Etoposide loaded injectable silk gels for local treatment of neuroblastoma. American Association of Pharmaceutical Scientists 360, Washington, DC. November 4-7, 2018.
18. * [Ornell KJ](#), Zeki J, Harris J, Coburn JM, Chiu B. Sustained application of dinutuximab within neuroblastoma tumor is effective in decreasing tumor growth. American College of Surgeons 2018 Clinical Congress, Boston, MA. October 21-25, 2018.
19. * [Ornell KJ](#), Zeki J, Chiu B, Coburn J. Controlled release of dinutuximab from lyophilized silk fibroin foams for neuroblastoma treatment. Biomedical Engineering Society Annual Meeting, Atlanta, GA, October 17 – 20, 2018.
20. * [Boles JM](#), [Ornell KJ](#), Coburn JM. Development of a sustained release drug delivery system for ribociclib and sunitinib for pancreatic neuroendocrine tumor treatment. Biomedical Engineering Society Annual Meeting, Atlanta, GA, October 17 – 20, 2018.
21. * [Donnelly R](#), [Ornell KJ](#), Coburn J. Development of an assay to evaluate therapeutic response of cells in multiple culture models. Biomedical Engineering Society Annual Meeting, Atlanta, GA, October 17 – 20, 2018.
22. * [Mooney RG](#), [Carnes ME](#), Coburn JM, Pins GD. Novel horseradish peroxidase (HRP) crosslinking strategy for fibrin microthreads. Biomedical Engineering Society Annual Meeting, Atlanta, GA, October 17 – 20, 2018.
23. * Coburn JM, [Phan N](#), Wright T, Xu J. Plant cell line-derived scaffolds for three-dimensional cell culturing. BMES Advanced Biomanufacturing SIG meeting, Worcester, MA. August 23-24, 2018.
24. Yavuz B, Harrington K, Coburn JM, Chiu B, Kaplan DL. Silk carriers for local delivery of cisplatin: In vitro release kinetics. Society for Biomaterials Annual Meeting, Atlanta, GA. April 11-14, 2018.
25. * [Ornell KJ](#), [Phan NV](#), [Linthicum WH](#), [Lozada D](#), Coburn JM. Methacrylation of chondroitin sulfate for drug delivery applications. Society for Biomaterials Annual Meeting, Atlanta, GA. April 11-14, 2018.

26. * Sanders ME, Ornell KJ, Coburn JM. Tuning silk fibroin scaffold pore size via varying temperature controlled lyophilization parameters. Biomedical Engineering Society Annual Meeting, Phoenix, AZ, October 11 – 14, 2017.
27. Montalbán MG, Coburn JM, Lozano-Pérez AA, Cénis JL, VÍllora G, Kaplan DL. Anti-tumor activity of Curcumin-Loaded Silk Fibroin Nanoparticles. 10th World Congress of Chemical Engineering. Barcelona, Spain. October 1-5, 2017.
28. Yavuz, B, Coburn JM, Chiu B, Kaplan DL. Sustained release of etoposide - Silk wafer implants for neuroblastoma treatment. Controlled Release Society Annual Meeting and Exposition. Boston, MA, July 16-19, 2017.
29. Ashari N, Pang H, McLenithan J, Simon T, Xiong Y, Coburn JM, Bromberg J, Kaplan D, Fontaine M. Silk biomaterial improves Islet cell function and modulates cell surface Glut2 expression. 16th Congress of the International Pancreas and Islet Transplant Association. Oxford, UK, June 20-23, 2017.
30. Coburn JM, Jadhav S, Kimmerling EP, Cleaver O, Carrol TJ, Oxburgh LH, Kaplan DL. Characterization and modification of 3D silk scaffolds for kidney tissue engineering. Tissue Engineering and Regenerative Medical International Society Conference, San Diego, CA, December 11-14, 2016.
31. Herrera C, Olejniczak N, Zhang L, Coburn J, Kaplan D, LiWang PJ. Silk-formulated antiretrovirals as candidate microbicides. HIV Research for Prevention, Chicago, IL, October 17-21, 2016.
32. Zhang L, Herrera C, Coburn J, Kaplan D, LiWang PJ. Silk fibroin provides both temperature and sustained release of protein HIV inhibitor. HIV Research for Prevention, Chicago, IL, October 17-21, 2016.
33. Coburn JM, Cunningham R, Miki A, Chiu B, Kaplan DL. Tunable release of anti-cancer agents from silk-coated drug reservoirs. Biomedical Engineering Society Annual Meeting, Minneapolis, MN, October 5-8, 2016.
34. Zhang L, Herrera C, Coburn J, Kaplan D, LiWang PJ. Silk fibroin provides both temperature and sustained release of protein HIV inhibitor. HIV Persistence: Pathogenesis and Eradication, Olympic Valley, CA, March 20-24, 2016.
35. Coburn JM, Na E, Cunningham R, Kaplan DL. Mechanism of cationic drug binding and release from silk films for oncology therapeutics. US-Japan Symposium on Drug Delivery Systems. Maui, HI, December 16-21, 2015.
36. Kimmerling EP, Coburn J, Kaplan DL. A modular, three dimensional in vitro kidney perfusion bioreactor. Tissue Engineering Regenerative Medicine 4th World Congress, Boston, MA, September 8-11, 2015.
37. Applegate MB, Parlow BP, Coburn JM, Moreau J, Mondia J, Marelli B, Kaplan DL, Omenetto FG. 3D laser ablation of biocompatible silk fibroin hydrogels for biomedical applications. Conference on Lasers and Electro-Optics, San Jose, CA, May 10-15, 2015.
38. Coburn JM, Wo L, Yarema KJ, Elisseeff JH. Hexosamine analog inhibits IL-1 β related changes in bovine chondrocytes. Biomedical Engineering Society, Hartford, CT, Oct. 12-15, 2011.
39. Coburn JM, Campbell CT, Aich U, Yarema KJ, Elisseeff JH. Novel hexosamine analogs for recovery of chondrocytes from IL-1 β treatment. Tissue Engineering and Regenerative Medical International Society, Orlando, FL, December 5-8, 2010.
40. Coburn JM, Monagle S, Elisseeff JH. Chondroitin sulfated-based fiber scaffolds for cartilage tissue engineering. Tissue Engineering and Regenerative Medical International Society, Orlando, FL, December 5-8, 2010.
41. Coburn JM, Crist JW, Wo L, Yarema KJ, Elisseeff JH. Novel glucosamine analogs for recovery of chondrocytes from IL-1 β treatment. Biomedical Engineering Society, Austin, TX, October 6-9, 2010.
42. Singh A, Ye Z, Coburn J, Wo L, Elisseeff JH. Cyclodextrin-based tuning of PEG hydrogels for improved chondrogenesis of mesenchymal stem cells. Society for Biomaterials, Seattle, WA, April 21-24, 2010.
43. Coburn JM, Elisseeff JH. Fiber-reinforced hydrogels based on chondroitin sulfate for cartilage tissue engineering. Orthopedic Research Society, New Orleans, LA, March 6-9, 2010.

44. Gibson M, Coburn J, Romani W, Moroni L, Nahas Z, Yarema J, Elisseeff J. (2009) Treatment of experimental osteoarthritis with the intra-articular delivery of glucosamine. Segal North American Osteoarthritis Workshop.
45. Coburn J, Gibson M, Nahas Z, Moroni L, Dinah A, Elisseeff. Pilot study to evaluate the effects of intra-articular injections of nutrisupplements. Musculoskeletal Biology & Bioengineering Gordon Conference, Andover, NH, July 27 - August 1, 2008.
46. Coburn JM, Bush KA, and Pins GD. Establishing a quantitative link between fibronectin concentration and active binding sites for keratinocyte adhesion to collagen-glycoaminoglycan membranes. Biomedical Engineering Society, Baltimore, MD, September 29 – October 1, 2005.

Non-Peer Reviewed Abstracts (Podium Presentations)

1. * Gonyea C, Mooney R, Carnes M, Coburn J, Pins G. Enzymatic Crosslinking Strategy for Fibrin Microthreads Enables Tunable Mechanical Properties. 2020 WPI Virtual Research Showcase, May 4, 2020 – August 25, 2020.

Non-Peer Reviewed Abstracts (Poster Presentations)

1. * Gonyea C, Mooney R, Carnes M, Coburn J, Pins G. Enzymatic Crosslinking Strategy for Fibrin Microthreads Enables Tunable Mechanical Properties. 2020 Council on Undergraduate Research Posters on the Hill. April 21, 2020 (Virtual session due to COVID-19).
Won the IEEE-USA Engineering Award at the Council on Undergraduate Research Virtual Posters on the Hill contest
2. * Abbott A, Coburn JM. Effect of lyophilization drying time and temperature on silk fibroin scaffold structural properties, Graduate Research Innovation Exchange, Worcester, MA. February 12, 2020.
3. * Mistretta KA, Coburn JM. Sustained release of berzosertib as a radiosensitizer for the treatment of neuroendocrine tumors, Graduate Research Innovation Exchange, Worcester, MA. February 12, 2020.
4. * Rahman MM, Coburn JM. Cultured hairy roots in tissue engineering applications., Graduate Research Innovation Exchange, Worcester, MA. February 12, 2020.
5. * Wojnowski M, Coburn JM. Bioactive functionalization of silk fibers for spatial and temporal control of cell development in hydrogel scaffolds, Graduate Research Innovation Exchange, Worcester, MA. February 12, 2020.
Top scored during the first round (COVID-19 year, second round competition canceled)
6. * van Zyl E, Coburn JM. Characterization of transparent bacterial-derived cellulose produced with alternative carbon sources, Graduate Research Innovation Exchange, Worcester, MA. February 12, 2020.
Top scored during the first round (COVID-19 year, second round competition canceled)
7. * Bollati C, Grosha J, Ornell K, Coburn J, Rolle MW, Engineering human vascular tissue with incorporated silk microspheres, Graduate Research Innovation Exchange, Worcester, MA. February 6, 2019.
8. * Abbott A, Coburn JM. Avidin-modified silk films for tissue engineering applications, WPI Graduate Research Innovation Exchange, Worcester, MA. April 24, 2018.
9. * Ornell KJ, Phan NV, Linthicum WH, Lozada D, Coburn JM. Methacrylation of chondroitin sulfate for drug delivery applications, WPI Graduate Research Innovation Exchange, Worcester, MA. April 24, 2018.
10. * Vargas Montoya N, Peterson R, Coburn JM. Novel Silk micro-particle fabrication technique for cancer therapy applications, WPI Graduate Research Innovation Exchange, Worcester, MA. April 24, 2018.
Advanced to second round competition, awarded Honorable Mention.
11. * Abbott A, Coburn JM. Avidin-modified silk films for tissue engineering applications, WPI Soldier Science Symposium, Worcester, MA. February 26, 2018.
Advanced to second round competition, awarded Honorable Mention.
12. * Coburn JM, Abel C, Dodson L. High Engagement Ethics Learning of Drug Delivery Technologies (Poster). WPI Teaching and Learning Showcase, Worcester, MA. May 3, 2017.

13. Coburn JM, Chiu B, Seib FP, Pilichowska M, Holcroft C, Charest A, Kaplan DL. Development of focal therapy for locally advanced neuroblastoma. Tufts Clinical and Translation Science Institute Research Day, Boston, MA, November 13, 2014.

15. Patents

Issued

1. Coburn JM, Phan N, Gaudette G. Decellularization of Plant Cell Culture Materials for Tissue Engineering and Drug Delivery. (2021, U.S. patent number 11,110,203).
2. Elisseeff JH, Yarema K Coburn J, Aich U. Short-chain fatty acid hexosamine analogs and their use in tissue engineering applications (2019, U.S. patent number 10,227,369).

Filled

1. Decelles M, Paris B, Hallberg E, Smith M, Coburn JM, Troy K, Magit DP, Pins GD. The Design of an Implantable Reparative Device for Ulnar Collateral Ligament Tears in Overhead Throwing Athletes. Filed April 20, 2022.
2. Coburn JM, van Zyl E, Young E. Transparent Bacterial-Derived Pellicles and Methods of Making the Same (2020, Patent Pending, Application Number: 17/073,088).
3. Pins GD, Coburn JM, Carnes M, Mooney R. Method of enzymatic crosslinking of fibrin microthread scaffolds for tissue engineering and regenerative medicine. (2019, Patent Pending, Application Number: 62/714,356).
4. Burr A, Campagna A, Fatal J, Lin J, van Zyl E, Carnes M, Pins GD, Coburn, JM. Fibrin Scaffold with Microthreads and Growth Factors Immobilized Using Heparin. Filed April 19, 2017.
5. Varghese S, Coburn J, Gibson M, Nahas Z, Ye Z, Capriotti J, Elisseeff JH. Parenteral administration of glucosamine. (2010 Patent Pending, Application Number: 12/571,367).

16. Consultantships

17. Scholarship in Progress

Pending Proposals

- As of May 18, 2022, I have two pending research proposals (see CV section 13).

Planned Proposals

- NSF CAREER Award proposal, July 2022
- NIH proposal on the bacteria cellulose wound dress work

Manuscripts or Abstracts Submitted or In-Preparation from WPI Work

- I have *four* original-research manuscripts under review or in-preparation from research performed in my laboratory or in collaboration with other WPI laboratories.
 - o *[§] Abbott A, Gravina ME, Vandadi M, Rahbar N, Coburn JM. Influence of lyophilization primary drying time and temperature on porous silk scaffold fabrication for biomedical applications. Under review, Journal of Biomedical Materials Research Part A, October 2021.
 - o Carnes M, Cailin G, Coburn J, Pins G. A biomimetic approach to modulating the sustained release of fibroblast growth factor 2 (FGF2) from fibrin microthread scaffolds for skeletal muscle tissue engineering. In preparation, 2022.
 - o *[§] van Zyl EM, Keating K, Young EM, Coburn JM. Optically clear bacterial cellulose without post-synthesize modifications by altering the culture environment. In preparation, 2022.
 - o * Ali R, Parelkar S, Thompson P, Mitroka-Batsford S, Yerramilli V, Scarlata S, Mistretta K, Coburn J, Mattson A. Phomoxanthone A targets ATP synthase. Submitted to ACS Chemical Biology, 2022.

- I have *five* additional original research manuscripts planned for 2022 from research performed in my laboratory.
 - o van Zyl – Elzani plans to defend or PhD thesis work in 2022. She plans to submit at least one manuscript on antimicrobial peptide functionalized bacterial cellulose and at least one manuscript to alternative “green” surfactant systems for bacterial cellulose purification.
 - o Mistretta – thesis work on in vitro neuroblastoma modeling with innate immune cell investment and responses
 - o Wojnowski – thesis work on magnetically aligned silk microfibers for nerve regeneration
 - o Villarreal-Otalvaro – thesis work on trilycine crosslinking of gellan gum for antibody release with applications in cancer treatment
- I have *no* abstracts under review from research performed in my laboratory or in collaboration with other WPI laboratories.

Manuscripts or Abstracts Submitted or In-Preparation from Work Prior to WPI

Ongoing Collaborations

Since joining WPI I have established productive collaborations with:

- Jason Shohet, MD/PhD, Associate Professor and Chief, Pediatric Hematology/Oncology, University of Massachusetts Medical School
- Jianfeng Xu, PhD, Professor, Arkansas Biosciences Institute, College of Agriculture and Technology, Arkansas State University
- Xavier Keutgen MD, Assistant Professor, Department of Surgery, Rush University Medical Center
- Eric Young, PhD, Assistant Professor, Department of Chemical Engineering at Worcester Polytechnic Institute
- Leif Oxburgh, DVM, PhD, Faculty Scientist III, Center for Molecular Medicine, Maine Medical Center Research Institute
- Sunder Sims-Lucas, PhD, Assistant Professor, Department of Pediatrics, University of Pittsburgh
- Bill Chiu, MD, Associate Professor, Department of Surgery (Pediatric Surgery), Stanford University

18. Professional society memberships and offices

1. Society for Biomaterials (SFB), 2017 – present
 - a. SFB Tissue Engineering Special Interested Group member – 2017 – present
2. Association for Women in Engineering (AWIS), 2014 – 2017
3. Biomedical Engineering Society (BMES), 2005 – present
 - a. BMES Advanced Biomanufacturing Special Interested Group member – 2018
 - b. BMES Advanced Biomanufacturing Special Interested Group Council member (3-year term) – 2018-2020
4. Tissue Engineering Regenerative Medicine International Society (TERMIS), 2004 – 2016

19. Editorial and referee activities

Editorial Positions

1. Guest Editor, MDPI International Journal of Molecular Science, Special Issue on “Bacterial Cellulose: Synthesis, Structure, and Biomedical Application 2.0”, 2021-2022.
2. Guest Editor, MDPI International Journal of Molecular Science, Special Issue on “Bacterial Cellulose: Synthesis, Structure, and Biomedical Application”, 2020-2021.
3. Guest Editor (with D.L. Kaplan, Tufts University, USA), Current Opinion in Chemical Engineering, Thematic Issue: Material Engineering, 2019.

Manuscript Peer-Reviewer

I serve as a peer-reviewer for a variety of journals. In the past 3 years, I have completed over 20 journal article reviews in the journals listed below.

1. Ad Hoc Reviewer, Materials Science and Engineering: C, 2020 – present
2. *Ad Hoc* Reviewer, Tissue Engineering, 2020 – present
3. *Ad Hoc* Reviewer, International Journal of Biological Macromolecules, 2020 – present
4. *Ad Hoc* Reviewer, Frontiers, 2020 – present
5. *Ad Hoc* Reviewer, FASEB (Federation of American Societies for Experimental Biology), 2020 – present
6. *Ad Hoc* Reviewer, Northern New York Medical Review, 2019 – present
7. *Ad Hoc* Reviewer, Acta Biomaterialia, 2018 – present
8. *Ad Hoc* Reviewer, MDPI Molecules, 2018 – present
9. *Ad Hoc* Reviewer, MDPI Pharmaceutics, 2018 – present
10. *Ad Hoc* Reviewer, Biomaterials, 2017 – present
11. *Ad Hoc* Reviewer, MDPI Bioengineering, 2017 – present
12. *Ad Hoc* Reviewer, Journal of Biomedical Materials Research: Part B – Applied Biomaterials, 2016 – present
13. *Ad Hoc* Reviewer, ACS Biomaterials Science and Engineering, 2015 – present
14. *Ad Hoc* Reviewer, Journal of Tissue Engineering and Regenerative Medicine, 2014 – present
15. *Ad Hoc* Reviewer, ACS Biomacromolecules, 2013 – present

Editorial Board Member

1. Section Board, International Journal of Molecular Sciences – Macromolecules section, 2018 – present

Books and Commentaries

20. Honors, awards and other recognitions related to scholarship

1. 2020 Biomaterials Science Emerging Investigators, Royal Society of Chemistry
2. 2020, Society of Sigma Xi at WPI, Award for Outstanding Research and Scholarship at WPI
3. 2019, 2021 WPI Trustee’s Faculty Achievement Award
4. 2002-2006, University Scholars (MA state college or university scholarship for high school valedictorian and salutatorian)
5. 2002-2006, Waste Management - Scholarship America
6. 2005-2006, Emeronian Scholarship
7. Fall 2005, Alumni Achievement Scholarship (UMASS)
8. Spring 2005, Ben and Stella Galas Scholarship (UMASS)
9. 2003-2004, Engineering Scholarship Fund (UMASS)
10. 2003-2004, Chemical Engineering Scholarship (UMASS)

21. Citations (as of May 18, 2022)

Google scholar – h-index: 25; citations: 2550
 Scopus – h-index: 23; citations: 1941

Leadership and Service

LEADERSHIP AND SERVICE HIGHLIGHTS

- Selected as Track Chair for Biomedical Engineering Society (BMES) National Meeting (2022 Biomanufacturing)
- Elected as the Society for Biomaterials Tissue Engineering Special Interest Group office (2021-2023 Vice Chair; 2019-2021 Secretary/Treasurer)
- Biomaterials Symposium Chair for the Nanotech Conference and Expo the research arm of TechConnect (2021, 2022)
- Elected Council Member of the BMES Biomanufacturing Special Interest Group (ABioM-SIG) (2018-2023); co-organized the Biomedical Engineering Society (BMES): Advanced Biomanufacturing Special Interest Group (ABioM-SIG) Meeting (August 23-24, 2018)

- Grant review panelist for NSF, NIH, and DoD; reviewer for biomedical and materials science journals; abstract reviewer for scientific conferences
- Elected by faculty peers to the Committee on Advising and Student Life (CASL)
- Appointed by WPI leadership to serve on the Access and Affordability Group for the WPI Strategic Plan (2021 – current)
- Served as WPI Representative for the NIIMBL Workforce Activities Committee (2019 – current)
- Served on the BME Department Undergraduate Curriculum Committee from my start at WPI; provided leadership to department initiatives including curriculum evaluation, ABET evaluation, and academic advising
- Developed and implemented a hands-on STEM outreach program for a Worcester public elementary school; received funding from the Women’s Impact Network (WIN) to build out the program with teacher professional development and field trips
- Founding faculty advisor for the WPI graduate student chapter of BMES, 2018
- Founding faculty advisor for the WPI First Generation Student Association, 2019

22. Profession

1. Symposium Chair, Biomaterials, Nanotech Conference and Expo, National Harbor, MD, June 13 – 16, 2022.
2. Session Chair, “Biomimetic Hydrogels for Drug Delivery and Tissue Engineering Applications, Society for Biomaterials Meeting, April 27 - 30, 2022
3. Abstract Reviewer, Society for Biomaterials, 2021.
4. Vice Chair, Tissue Engineering Special Interest Group, Society for Biomaterials (2-year term) – 2021 – present
5. Session Chair, “Tissue Engineering Special Interest Group I,” Society for Biomaterials Meeting, Virtual Meeting, 2021.
6. Abstract Reviewer, Society for Biomaterials, 2020.
7. Proposal Reviewer, NSF DMR BMAT standard submission proposals, 2020.
8. Symposium Chair, Biomaterials, Nanotech Conference and Expo, National Harbor, MD, June 29 – July 1, 2020 (cancelled and merged with the 2021 meeting).
 - a. Program development for three sessions: Materials for Drug and Gene Delivery, Biomaterials, and Bioadhesives & Biocoatings in collaboration with the Nanotech Conference Chairs.
 - b. Invited Key Speakers
 - c. Reviewed abstracts for all Biomaterials-related submissions
 - d. Finalized session plans in collaboration with Nanotech Conference Chairs
 - e. Chaired five sessions at the conference
9. Secretary/Treasurer, Tissue Engineering Special Interest Group, Society for Biomaterials (2-year term) – 2019 – 2021
 - a. Drafted, refined, and finalized TE-SIG budgets for Society For Biomaterials Meeting and World Biomaterials Congress student travel awards and network events
 - b. For the 2020 World Biomaterials Congress – solicited abstract submissions, reviewed abstract submissions, and finalized awardees for the student registration award (virtual meeting)
10. Pre-proposal reviewer (TTRA, IIRA), Department of Defense Peer Reviewed Medical Research Program, 2018, 2019
11. Session Chair, “Stem Cells in Tissue Engineering II,” Biomedical Engineering Society National Meeting, Atlanta, GA, 2018
12. Council Member, Biomedical Engineering Society Advanced Biomanufacturing Scientific Interest Group (3-year term) – 2018 - present
 - a. Organizing Committee member, Biomedical Engineering Society (BMES): Advanced Biomanufacturing Special Interest Group (ABioM-SIG) Meeting, College Park, MD, March 30 – April 1, 2020 (cancelled; reschedule for 2023)

- b. Organizing Committee member, Biomedical Engineering Society (BMES): Advanced Biomanufacturing Special Interest Group (ABioM-SIG) Meeting, Worcester, MA, August 23-24, 2018
13. Abstract Reviewer, Biomedical Engineering Society National Meeting, 2018
14. Session Chair, “Cancer Drug Delivery,” Biomedical Engineering Society National Meeting, Phoenix, AZ, 2017
15. Abstract Reviewer, Biomedical Engineering Society National Meeting, 2017
16. Session Chair, “Biomaterials III,” Biomedical Engineering Society National Meeting, Minneapolis, MN, 2016
17. Abstract Reviewer, Biomedical Engineering Society National Meeting, 2016
18. I am an active member of 3 professional societies (See Coburn CV, section 18)
19. I am a reviewer for several professional journals within my fields of research (See Coburn CV, section 19)

23. Department and University (WPI Committee and Administrative Assignments)

Departmental Service

1. Member, Biomedical Engineering Department Faculty Search Committee, 2021 – 2022
2. Diversity Advocate, 2021-2022 Faculty Search. Ensured compliance, monitored candidate statistics, and will write summary reports.
3. Represent WPI BME Department at the virtual recruitment table at the Biomedical Engineering Society annual meeting, Virtual, October 14-17, 2020.
4. Member, Robert A. Peura Scholarship Evaluation Committee, 2019.
5. Represent WPI BME Department at the recruitment table at the Biomedical Engineering Society annual meeting, Atlanta, GA, October 16 – 19, 2019.
6. Represent WPI BME Department at the recruitment table at the Biomedical Engineering Society annual meeting, Atlanta, GA, October 17 – 20, 2018.
7. Judge, BME MQP Project Presentation Day, 2017, 2018, 2019, 2020, 2021
8. Member, Biomedical Engineering Department Undergraduate Curriculum Committee, Fall 2016 – Present
9. Member, Biomedical Engineering Department Graduate Qualifying Examination Committee, Fall 2016 – Present
10. Represent WPI BME Department at recruitment table at the Biomedical Engineering Society annual meeting, Phoenix, AZ, October 11-14, 2017.
11. Represent WPI BME Department at recruitment table at the Biomedical Engineering Society annual meeting, Minneapolis, MN, October 5-8, 2016.
12. Member, Biomedical Engineering Department Faculty Search Committee, Fall 2016 – 2017

College-wide Service

1. Member, WPI Strategic Plan – Access and Affordability Group, 2021 – Present
2. Summer Professional Development Series for Undergraduates (SPuDS) Faculty Presentation on academic career and being a first generation college student, June 07, 2021
3. Member, Committee on Advising and Student Life, 2020 – Present
4. President, WPI Chapter of the Sigma Xi Scientific Research Society, 2020 – 2022
5. NIIMBL Workforce Activities Committee WPI Representative, 2019 – Present
6. Faculty presentation on teaching at WPI during New Faculty Orientation, August 2019.
7. Faculty Lead, BME Frontiers, 2018
8. BME department coordinator for TouchTomorrow 2017, 2018, 2019, 2022. Planned and executed BME faculty lab tours and activities at Gateway and Polar Park.

9. Lab Presenter, Presented silkworms and biomaterial applications to local community members, TouchTomorrow, 2017, 2018, 2019, 2021, 2022
10. Judge, GRIE Graduate Poster Competition, 2017, 2018, 2020 (graduate students and postdocs)
11. Mentor, STEM Faculty Launch Program, 2016, 2017, 2018
12. NSF GRFP Peer Review, 2016, 2018 (reviewed applicant's personal and research statements)
13. Coordinator and Host, Biomedical Engineering Department hands-on tutorials for National Consortium of Secondary STEM Schools 2017 Student Research Conference (hosted by Mass Academy of Math and Science), 2017

24. Students at WPI

1. Faculty Advisor, First Generation Student Association, awaiting official approval to be a WPI student organization, 2019 - Present
2. Fellow, Innovations Program for first generation college students (defined as a student whose parent(s)/legal guardian(s) have not completed a bachelor's degree), 2018 – Present
 - a. AY2021/22: Coordinated the Peer Mentoring Program with Heidi Morton
 - b. AY2020/21: Planned, developed, and executed the Peer Mentoring Program with Heidi Morton (WPI Career Development Center) and Claudia Aviles (WPI Admissions Office); paired first year students with upper class students for a one-on-one mentoring opportunity to assist with acclimation to the college experience; developed the summer online training program for the mentors.
 - c. AY2019/20: Served on the planning committee for the First-Generation Student activities at WPI. Served as a faculty mentor for 8 first year, first generation college students.
3. Faculty Advisor, Graduate student portion of WPI Student Chapter of the Biomedical Engineering Society, Spring 2018 – present
4. Coordinator, BME STEM outreach. Develop and execute hour-long hands on modules for local elementary schools related to STEM. Each module has hands-on activities as well as an item the student builds, draws, or otherwise creates to bring home. Undergraduate and graduate students from the WPI Biomedical Engineering Society Chapter assist with delivering these in-class modules. This provides an opportunity for our undergraduates and graduates to give back to the local community, equipping our students with methods to leverage their engineering skills to equip underserved students in the Worcester school district (Belmont Street Community School) 2017 – present
5. Wrote letters of recommendation and acted as a reference for 27 students and 3 colleagues to support their applications to jobs, internships, co-ops, scholarships, conferences, honor societies, graduate school, research fellowships, and awards (including a runner up for the TA award).
6. Career advising for undergraduate and graduate students, including review of resumes, personal statements, and graduate/professional school application materials.
7. Coordinator, Graduate Student Presentation Series on Translation Bioengineering, Fall 2016 – Fall 2017. Since joining WPI I have participated in a variety of workshops and seminars organized by the Morgan Teaching and Learning Center to enhance my interactions with students and teaching skills. Furthermore, these workshops and seminars provided a framework to interact with WPI faculty. I have also been actively participated in the Kern Entrepreneurial Engineering Network at WPI and nationally through workshops, seminars, and conferences to learn tools for active and engaging course modules to instill the entrepreneurial mindset in the students that I teach.

25. Community – Civic, Cultural and Religious Service

1. Invitation presentation, Women in Engineering and Science Student Group, Algonquin Regional High School, April 9, 2021
2. Advisory Board Member, Computer Science Grant Council, Berlin-Boylston Regional School District, 2020-2022

3. Faculty Presenter for the “WPI Women in STEM Conference for WPS students, champions, and teachers”, 2019. Ran session titled “What does slime have to do with Biomedical Engineering?” with hands-on activities. Conference focused on inspiring the next generation of women scientists, mathematicians, and engineers that are eager to solve the problems in our communities and world.
4. Member, Science, Technology, Engineering, and Math Advisor Board for Boylston Elementary School, 2018
5. Service Chair, Chemical and Biomolecular Engineering Graduate Student Liaison Committee, 2009-2010
6. Tutor, Johns Hopkins Tutorial Project, 2008-2010
7. Volunteer, Habitat for Humanity of the Chesapeake, 2007-2010