Kathryn A. Wingate
Associate Teaching Professor
Ann and H.J. Smead Aerospace Engineering Sciences
University of Colorado, Boulder
27 Jan 2025

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15 July 2024

I. EARNED DEGREES

Degree	Year	University	Field
Doctor of Philosophy	2013	University of Colorado Boulder	Mechanical Engineering
Master of Science	2011	University of Colorado Boulder	Mechanical Engineering
Bachelor of Science	2005	University of Illinois at Urbana-Champaign	Mechanical Engineering
Bachelor of Science	2005	University of Illinois at Urbana-Champaign	Astronomy

II. EMPLOYMENT HISTORY

Title	Organization	Years
Associate Teaching Prof	University of Colorado Boulder AES	7/24- current
Assistant Teaching Prof	University of Colorado Boulder AES	8/18- 7/24
Academic Professional	Georgia Institute of Technology ME	5/14-6/18
Adjunct Instructor	Georgia Institute of Technology ME	8/13-5/14
Graduate Student	University of Colorado Boulder ME	1/09-8/13
Graduate Part Time Instructor	University of Colorado Boulder ME	8/11-12/11
PM&P Engineer II	Northrop Grumman Space Technology	12/06-1/09
Manufacturing Engineer	Northrop Grumman Space Technology	6/05-12/06

III. TEACHING

A. Courses Taught

Semester, Year	Course Title	Number of Students
Coursera		
Ongoing	Machine Design MOOC	> 6000
AES, University of Colorado Boulder		
Fall 2024	Senior Projects Coord (ASEN 4028)	290
Spring 2024	Senior Projects Coord (ASEN 4018)	215
Fall 2023	Senior Projects Coord (ASEN 4018)	215
Spring 2023	Senior Projects Coord (ASEN 4028)	200
Spring 2023	Materials Science (ASEN 1022)	350
Fall 2022	Statics Lecture (ASEN 2001)	330
Fall 2022	Senior Projects Coord (ASEN 4018)	200

Spring 2021	½ Material Science (ASEN 1022)	350	
Spring 2021	Senior Projects PAB (ASEN 4018)	24	
Fall 2020	Senior Projects PAB (ASEN 4018)	24	
Fall 2020	Statics Lecture, Lab (ASEN 2001)	331	
Spring 2020	Materials Science (ASEN 1022)	356	
Spring 2020	Senior Projects (ASEN 4018)	24	
Spring 2020	Grad Projects (ASEN 5018)	8	
Spring 2020	Freshmen Projects (GEEN 1400)	32	
Fall 2019	Statics (ASEN 2001)	261	
Fall 2019	Senior Projects (ASEN 4018)	24	
Fall 2019	Grad Projects (ASEN 5018)	8	
Spring 2019	Freshmen Projects (GEEN 1400)	32	
Spring 2019	Grad Projects (ASEN 5018)	10	
Spring 2019	Senior Projects (ASEN 4018)	24	
Fall 2018	Statics (ASEN 2001)	256	
Fall 2018	Senior Projects (ASEN 4018)	24	
Fall 2018	Grad Projects (ASEN 5018)	10	

ME, Georgia Institute of Technology

Spring, 2018	Machine Design (ME 3180)	80	4.9/5
Spring, 2018	Capstone Design (ME 4182)	30	4.9/5
Spring, 2017	Machine Design (ME 3180)	65	4.9/5
Spring, 2017	Capstone Design (ME 4182)	30	5/5
Fall, 2016	Capstone Design (ME 4182)	36	4.9/5
Spring, 2016	Capstone Design (ME 4182)	36	4.9/5
Spring, 2016	Machine Design (ME 3180)	82	4.9/5
Fall, 2015	Machine Design (ME 3180)	63	5/5
Fall, 2015	Capstone Design (ME 4182)	36	4.8/5
Summer, 2015	Creative Design (ME 2110)	50	4.9/5
Spring, 2015	Machine Design (ME 3180)	60	4.9/5
Spring, 2015	Capstone Design (ME 4182)	36	5/5
Fall, 2014	Machine Design (ME 3180)	55	4.9/5
Fall, 2014	Creative Design (ME 2110)	50	4.7/5
Spring, 2014	Machine Design (ME 3180)	55	4.9/5
Fall, 2013	Machine Design (ME 3180)	40	4.9/5

B. Course Instruction and Development of Instructional Materials

University of Colorado Boulder, Department of Aerospace Engineering and Sciences

Senior Projects Coordinator, ASEN 4018

- Fall 2024
  - Coordinated course with 8 faculty advisors, 290 students, and 24 teams. Delivered lectures, developed schedules, led reviews and grading meetings, and provided all assignments
  - Supported Tom Morgan and Chris Muldrow as they secured funding from 9 industry sponsors and two alumni sponsors

- Found industry mentors for all 24 teams
- Determined that AY25/26 enrollment would exceed building capacity in terms of conference rooms, project spaces, and review times
- Led with tiger team of Prof. Hodgkinson, Scwartz, Rafi, Hoke, and Mah to develop new course structure that can meet the needs of 400 students within building and faculty/staff resources
- Proposed new course structure to department chair, undergraduate committee, EAB, and department. New course structure is approved for roll out in AY 25/26.

- Spring 2024
  - Continued full roll out of pilot program with academic/industry mentors
  - Kicked off a spring 'SP Q&A' series where students sign up for a one-hour question and answer session with an industry, government, or academic representative about career paths. Speakers include Director of the Naval Nuclear Reactor Surface Ships Division (government), Chris Muldrow (10+ years at Lockheed), and AES faculty with a science research focus.
  - Started 1 hour brown bag lunch sessions with students to answer questions regarding resumes, interviews, and job negotiations
  - Collaborated with events team to host AES Projects Symposium for seniors to showcase their projects to industry sponsors, EAB, and family and friends.
- Summer/Fall 2023
  - Implemented Pilot program across entire senior projects, with 7 faculty advisors, 215 students, and 21 teams
  - Worked with Claire Yang and Chris Muldrow to secure funding from 10 industry sponsors
  - Found academic and industry mentors for all 21 teams
  - Hosted 'Mentor Kick Off' Night in September where teams have a kick off meeting with their industry and academic mentors to go through project requirements, scope, and risks
  - Assisted with ABET assessment of learning outcomes through senior projects and met with ABET evaluator

- Summer/Fall 2022
  - Developed Pilot program for senior projects to better scale course given increases in enrollment.
    - In Pilot program, an AES faculty member develops a project for three student teams, and serve as the technical mentor and PAB advisor.
    - Industry sponsors contribute funds into a central pool which funds all pilot projects. These sponsors have the

option to mentor teams, and may attend any team review with an eye towards workforce development.
        - Pilot program was pitched to design CG and chairs and approved for implementation in AY22/23 in May 2022.
        - In AY 22/23, 8 industry sponsors funded the pilot program. Prof. Anderson, Mah, and Holzinger participated in the pilot program, with projects in bioastro, cislunar infrastructure, and unmanned aerial vehicles. Each advised three teams for a total of 9 teams and roughly 90 students. Each student team was assigned an industry mentor.
    - Collaborated with Claire Yang to raise $280k from industry and government sponsors to fund senior projects. Sponsors include: Blue Origin, Ball Aerospace, L3 Harris, Lockheed Martin, Aerospace Corp, Echostar, AeroVironment, JPL, EnerSYS, AstroBi, Astroscale, and General Atomics.
    - Scoped 12 design projects for 21 student teams: 4 faculty projects and 8 industry projects
    - Served as PAB coordinator for Section 011 and ½ of section 012 (~150 students, 15 teams)
    - Worked with Chris Muldrow to revise requirements, risk lectures and develop a Design for X lecture
    - Invited Jack Elston (Blackswift, AES EAB) to give guest lecture on successful prototyping practices
    - Scaled course assignments to allow faculty members to mentor three teams instead of two.
        - Course enrollment has grown from ~12 teams in AY 18/29 to 21 teams in AY 22/23, requiring faculty advisors (PAB) to take on three teams for same TC load
        - Developed 'mini' PAB panels for design reviews. Previously all PAB members in a section would review all teams (in AY 21/22, each PAB members would attend reviews of 10 to 12 teams throughout the year). With mini review panels, PAB members attend ½ of the reviews in their section (in AY 22/23, each PAB member would attend reviews of same 6 teams throughout year).
        - Changed final reports from comprehensive 150+ page reports to 30 page summaries of the design (fall semester) and V&V results (spring semester).
- Fall 2021/Spring 2022:
    - Served as PAB coordinator for Section 011 (~100 students)
    - Revamped requirements flow down lecture to include more detailed examples from NASA Systems Engineering Handbook and advice from industry experts trained in MBSE
    - Developed senior project overview presentation for EAB and future sponsors

- Collaborated with AES industry relations team, department chair, and other program coordinator to assist in securing funding and scoping projects for 19 student teams: 14 external (industry/government) and 5 internal
- Leading effort to redesign course to allow sustainable teaching load given increasing enrollment. Removed Manufacturing Status Review (MSR) and developed an Internal Design Review in its place, which is a two-week set of informal team mini meetings with subject matter experts in software, electronics, mechanical systems, and test safety. Moved Test Readiness Review (TRR) to earlier in the semester and increased the length of the presentation so students could obtain detailed feedback earlier.
- Created Test Readiness Review lecture to guide students through determining what to test, developing thorough test plans and how to present test plans and data
- Invited guest lecturer Prof. Sarah Stanford Mcintyre, Codirector of the Certificate in Engineering, Ethics & Society in the Herbst Program to give a new lecture on ethics in technology

ASEN 2001 (Statics)

- Fall 2020:
  - Collaborating with Dr. Aaron Johnson to develop three new statics labs that are open ended modeling problems. These problems give students opportunities to determine design requirements, model engineering systems utilizing free body diagrams, and analyze the systems with the static equilibrium and solid mechanics principles. My focus was on the development of the first two labs. The first lab has students model a gondola system and ram air turbine blade, select 2D supports, draw a FBD, solve equilibrium equations, and utilize distributed loads and equivalent systems. The second lab has students model playground equipment, explain the differences between statically determinate and indeterminate systems, and design and solve 3D static equilibrium systems. Individual lab 'checks' were implemented as Canvas quizzes to assess individual learning. Detailed grading rubrics were developed for Gradescope to allow TAs to quickly and consistently grade the group lab submissions.
- Fall 2019:
  - Revised first 2001 'programming' group lab to an individual programming lab with the end goal that all students get an 'on ramp' to programming with rapid online feedback. Created online prelab lecture videos, split original assignment into four-week long sections, and developed online grade checks of code for each assignment using MATLAB grader.
- Fall 2018

- Developed and delivered all lectures, assignments, and exams for first half of lecture portion of sophomore statics course.
- Managed team of 6 TAs and TFs to oversee lab, exam and lab grading, office hours.

PAB Member, ASEN 4018/28 (Senior Projects)

- AY 2018/19, 2019/20, 2020/21: Serving as PAB member, acting as design reviewer for CDD, PDR, CDR, MMR, and TRR for teams

Advisor, ASEN 5018 (Grad Projects)

- AY 18/19:
  - Advised a team of students to design the payload, power system, and bus of small robotic spacecraft which will land on an asteroid, dig on the asteroid, and launch asteroid regolith off the asteroid surface.
- AY 19/20:
  - Advised a second team of students on ideation, mechanical and materials design, prototype fabrication and testing of soft robotic 'petals' to allow the small robotic spacecraft to walk on the surface of an asteroid

GEEN 1400 Freshmen Projects

- Spring 2019:
  - Taught design process including requirement development, subsystem breakdown, ideation, trade studies, preliminary analysis techniques and prototyping to 6 teams of 5-6 freshmen. All teams completed open ended design projects.
- Spring 2020:
  - Adjusted class to online format for COVID-19 pandemic, changing project to an individual design challenge that could be completed in a standard apartment/dorm and a final video presentation with peer review

ASEN 1022 (Materials Science)

- Spring 2022:
  - Utilizing course content from 2021 and 2020, taught course to 350 freshmen/sophomores.
- Spring 2021:
  - Revamped course to a 6 quiz, optional six question final exam format to allow student flexibility during pandemic
- Spring 2020:
  - Developed and delivered all lectures, assignments, and exams for materials science course (entire semester)
  - Adjusted class to online format for COVID-19 pandemic, taping lecture videos, holding zoom office hours, and setting up online exams via Canvas. FCQ feedback: 'Professor Wingate was

incredibly supportive during the transition to online learning, making the transition the easiest out of all of my classes. She made her class engaging, accessible, and allowed us to push ourselves into learning without leaving us behind in confusion'
    - Collaborated with the TA/TF team and lab instructional staff to 'flip' the tensile test lab, giving students the option to complete the lab testing in person or via video, and therefore reducing strain on lab TA/TF/LA time.
    - Managed team of 8 TAs and TFs to oversee exam and lab grading, office hours.

Coursera

Machine Design Part 1, Massive Open Online Lecture.

- Developed all lecture material, exams, worksheets, and industry case studies for machine design course. Due to copyright constraints, created many new figures for static and fatigue failure.
- Collaborated with Georgia Tech C21U to create and produce high-quality online videos of lecture material for Coursera platform. Oversaw course roll-out and engaged with students in discussion forum.
- Course went live Fall 2016, and features a new session every 4 weeks. As of Summer 2017, course has a rating of 4.8 stars out of 5, and over 11,000 active learners.

Georgia Institute of Technology, GWW School of Mechanical Engineering

ME 4182 Capstone Design

- Mentored six student teams each semester on wide variety of industry, student, and university sponsored design projects, including cube satellites, crane hoisting devices, and biomedical implants.
- Arranged for each student team to have one to two external reviewers with expertise in the design project attend three formal design reviews throughout the semester: System Requirements Review (SRR), Preliminary Design Review (PDR) and Critical Design Review (CDR).
- Constructed detailed grading rubrics for SRR, PDR, and CDR reports and presentations, which implemented critical milestones for students throughout the semester.
- Developed and delivered lecture on design validation through analysis and test for entire ME and inter-disciplinary capstone class (>300 students per semester).

ME 3180 Machine Design

- Created all lectures, exams, and homework per ABET standards. Topics included material selection, static failure theories, fatigue failure theories, shaft, bearing, gear, spring, and fastener analysis.
- Developed multiple in-class industry case studies, including material selection in a total hip implant, equivalent stresses in a Boeing 777 wing, and spring design in a ram air turbine.

- Reached out to industry contacts at GM and Zimmer, and negotiated gratis donations of two automatic transmission cutaways and one total hip implant for use in course
- Designed two homework assignments in which students utilize a GM automotive transmission cutaway to calculate torque transmission, shaft life, and study bearing selection.
- Invited guest speakers from GM and Northrop Grumman to give lectures on complex system design, such as an automatic automotive transmission or the James Webb Space Telescope.
- Implemented an active learning exercise where students dissect hand held cordless drills and analyze planetary gear train ratios, torque speed curve, and component mounting.

C. Interdisciplinary Teaching Activities

Georgia Institute of Technology ME 4182 Capstone Design:

- Mentored the following interdisciplinary capstone teams:
- Team Alpha Medical, BME and ME students, designed a device for loading stem cells into a cannula.
- Team RECONSO, comprised of ME students that worked with a number of other student teams in AE, ME, and EE to design a cube satellite for space debris observation.
- Team Leo Laser, comprised of ME students that worked with AE students and faculty to design a cube satellite with deployable sun shield for Lockheed Martin and Australia CERC. Team presented at Advanced Maui Optical and Space Surveillance Technologies Conference in Fall 2017.

D. Service on Thesis Committees

- John F Papayanopoulos, *Autonomous UAV Precision Pickup*. Defended MS in Dec 2017. (advisor: Prof. Jon Rogers)

IV. RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES

A. Refereed Journal Publications

- K. Wingate, M. Floren, Y. Tan, T. Tseng, C. Ou, and W. Tan, Synergism of matrix stiffness and vascular endothelial growth factor on mesenchymal stem cells for vascular endothelial regeneration. *Tissue Engineering Part A,* September 2014, 20(17-18): 2503-2512.

- K. Wingate, W. Bonani, Y. Tan, S.J. Bryant, W. Tan, Compressive elasticity of three-dimensional nanofiber matrix directs mesenchymal stem cell differentiation to vascular cells with endothelial or smooth muscle cell markers, *Acta Biomaterialia*, Volume 8, Issue 4, April 2012, Pages 1440-1449, ISSN 1742-7061.

B. Conference Presentations with Proceedings (Refereed)

- K. Wingate, M. Holzinger. Scaling an Aerospace Engineering Senior Design Program to Handle Increased Enrollment. ASEE Annual Conference and Exposition, Portland, June 2024.

- K. Wingate, K Brooks, A Johnson. The Impact of Socioeconomic Status on Student Performance and Persistence in the Aerospace Major. ASEE Annual Conference and Exposition, Minneapolis, June 2022.

- K. Wingate, A Johnson, L Buri. The Impact of Doubling Department Course Offerings on Faculty Coverage, Student Performance, and Student Attrition Rates. ASEE Annual Conference and Exposition, Remote, July 2021.

- Z. Sunberg, K. Wingate. Fair senior capstone project teaming based on skills, preferences, and friend groups. ASEE Annual Conference and Exposition, Remote, July 2021.

- C. Ott, A. Johnson, K. Wingate. Student Achievement Goals with Alternative and Traditional Exam Formats. ASEE Annual Conference and Exposition, Remote, July 2021.

- K. Wingate, A. Johnson, L. Ruane, D. Akos. Variables that Impact Student Performance in Sophomore Aerospace Programming Assignments. ASEE Annual Conference and Exposition, Montreal Canada, June 2020.

- K. Wingate, A. Ferri, S. Kinney. The Impact of the Physics, Statics, and Mechanics Sequence on Student Retention and Performance in Mechanical Engineering. Talk. ASEE Annual Conference and Exposition, Salt Lake City UT, June 2018.

- J. Dixon, J. DiPrete, J. Green, C. Healy, W. Underwood, I. Wittenstein, K. Wingate, M. Holzinger, L. Smith. Preliminary CubeSat Design for Laser Remote Maneuver of Space Debris at the Space Environment Research Centre. Advanced Maui Optical Space Surveillance Technologies Conference, Maui, HI, September 2017.

- K. Wingate, R. Kadel, A. Madden. Utilizing a MOOC to assess student understanding of fundamental principals in combined static loading. Talk. ASEE Annual Conference and Exposition, Cleveland, OH, June 2017.

- K. Wingate, Y. Tan, W. Tan. The effects of mechanical and chemical stimuli on paracrine signaling and functional endothelial differentiation abilities of mesenchymal stem cells. Poster Presentation. ASME Bioengineering Conference, Bend, OR, June 2013.

- K. Wingate, Y. Tan, R. Nemenoff, W. Tan. The combined impact of VEGF-A growth factor and matrix stiffness on mesenchymal stem cell differentiation towards endothelial cells. Poster Presentation. ASME Bioengineering Conference, Fajardo, Puerto Rico, June 2012.

- K. Wingate, D. Scott, W. Bonani, W. Tan. Hydrogel nanofiber stiffness influences mesenchymal stem cell spreading and vascular differentiation in 3D matrix. Poster Presentation. Biomaterials Symposium, Orlando, FL, April 2011.

- K. Wingate, W. Bonani, S. LaNasa, W. Tan. Vascular graft design: the impact of nanofiber elasticity on mesenchymal stem cell differentiation and spreading. Talk. MRS Bio-Nano Materials Conference, Denver, CO, October 2010.

C. Other Publications and Creative Products

- Wingate, Kathryn. Machine Design Part 1 MOOC, Coursera, Fall 2016- present. Online Machine Design course developed and implemented on Coursera platform. 5-week course covers static and fatigue failure. Over 12,000 active learners worldwide as of Summer 2017.

C. Presentations

- EAB presentation: Spring 2024, Fall 2024.
  Presented current plans for senior projects course updates

- Panel: Women in Aeronautics and Astronautics, Fall 2019, Fall 2020
  Panel discussion hosted by WIAS on tips for success in the aerospace industry.

- Keynote Speaker, Tea with the Dean, Fall 2016. Women in Engineering, Georgia Institute of Technology. Annual event hosted by WIE and the Dean

of Engineering for undergraduate and graduate females. Delivered talk on strategies to survive Georgia Tech and succeed upon graduation.

- Mechanical and Nuclear Engineering: Engineering Career Conference. Fall 2017, Fall 2016, Fall 2015. Women in Engineering, Georgia Institute of Technology. Conference hosted by WIE recruiting high school girls to engineering at Georgia Tech.

- Undergraduate Research Opportunities. Spring 2016, ASME, Georgia Institute of Technology.

- Strategies for Industry. Society of Women Engineers (SWE) Region D Conference, Spring 2016.

- Closing the Gender Pay Gap: How do I achieve equal pay throughout my career? Fall 2015, Society for Women Engineers, Georgia Institute of Technology.
- Resume, Interviewing, and Industry Skills. Fall 2016, 2015, Spring 2015, GWW School of Mechanical Engineering at Georgia Institute of Technology.

- Strategies for Industry: Tackling Presentations, Promotions, and Tough Situations. Summer 2015, Society for Woman Engineers, Georgia Institute of Technology.

- Value of a Graduate Degree, Panelist. Spring 2015, Society of Woman Engineers, Georgia Institute of Technology.

- Women in Engineering Sponsored Coffee Talk. Fall 2014, Georgia Institute of Technology.

- Women in Engineering Sponsored Luncheon. Spring 2014, Georgia Institute of Technology.

D. Grants and Contracts

a. PI for CU, Co-I for grant with Aaron Johnson (University of Michigan)
Submitted Mar 2024, Not awarded.
Title: Collaborative Research: How Students from a Low-Socioeconomic Status Background Thrive in Engineering, Proposal # 2423473
Agency: National Science Foundation, Broadening Participation in Engineering, Track 2
Total Dollar Amount (for CU) $145, 818

b. Sponsor for Prof. Mitchell's (Organizational Leadership, Leeds) submission of ' Nurturing the Garden: Structural Factors Predicting Female Leadership' to CU CEAS EEF.
This proposal is examining female experiences in five capstone courses in the college of engineering and applied sciences. Data collection is via four surveys throughout the year. Prof. Mitchell will be surveying the aerospace capstone course in AY 24-25.
Agency: CU CEAS Engineering Excellence Fund
Submitted: March 20th, 2024, Funded.

c. As Principal Investigator
Awarded:
Title: **Massively Open Online Course (MOOC) Proposal**
Date Awarded: May 2016.
Agency/Company: Georgia Institute of Technology Office of the Provost.
Total Dollar Amount: $18000
Role: PI
Period of Contract: Summer 2016, Fall 2016

V. SERVICE

A. Contributions at the University of Colorado, Boulder Department of Aerospace Engineering and Sciences

Undergraduate Curriculum Committee, 2018- Current.

- UG Curriculum Committee works to ensure the UG curriculum can handle high student enrollment while fitting in new building space, and develop and improve the UG curriculum for future students.
- AY 24/25
  - Supported development of new AES curriculum for roll out in AY 24/25.
  - Presented at undergraduate retreat on faculty and staff expectations
  - Developed systems portion of Intro to Astro class, including learning objectives, lecture topics/schedule, course structure, and labs

- AY 23/24
  - Developed course proposals for new Statics and Intro to Astro courses
- AY 22/23
  - Reached out to faculty to develop content for new proposed Intro to Astro course
  - Assisted with learning objective development for new curriculum based off of engineering education literature
- AY 21/22:

    - Performed and presented literature review on engineering curriculum design, development, and best practices
    - Assisted with ASEN 2701, 2704, and 2801 course proposals
- AY 20/21:
    - Analyzed teaching credits via weighted means analysis to determine persistent 'holes' in teaching coverage in UG curriculum
- AY 19/20:
    - Chaired 2030 curriculum subcommittee. Analyzed and summarized curricula at the 10 peer AE institutions. Developed a survey to give to EAB/department alumni to determine critical topics for future curriculum

AES Teaching Quality Framework Committee:

- AY 20/21, 21/22
    - Committee developed a teaching quality framework matrix for yearly performance evaluations which evaluates a faculty member's teaching by combining FCQ scores, class difficulty level, and number of students taught the faculty member's self-evaluation and use of evidence-based teaching practices

CG Member: Design CG and Structures CG, 2019-2023

- Collected UG teaching preferences, recommended UG teaching plan AY, analyzed learning outcomes throughout courses in CG.

CEAS Academic Instruction Fall Planning Team: Senior Projects: Summer, Fall 2020

- Determined instructional plan for senior projects courses across the COE during Covid-19. Developed student guidelines for working in remotely in teams and in project workspaces safely during Covid-19.

Executive Committee,

- AY 19/20, 20/21Executive committee advises chair on high level department decisions

B. Contributions at the Georgia Institute of Technology

Women in Engineering (WIE) jrTEC Camp

- Teamed with Dr. Cassandra Telenko to develop a module introducing mechanical design to elementary school girls by dissecting common toys such as a Nerf shooter
- Module was loosely based on lesson plan developed at University of Texas Austin, and stressed design ideation, machine component vocabulary, and machine component functionality.
- Co-taught module with Dr. Telenko to 20 elementary school girls during the WIE jrTEC camp in the summer of 2015 and 2016.

Chair Search Committee Member: 2017 2018 Academic Year

- Committee to conduct search for new ME school chair. Duties include, reviewing all applicants, participating in all airport and on campus

interviews, and giving final recommendation to Dean of Engineering. Committee members selected by Dean of Engineering.

Faculty Advisory Committee Member: Summer 2017- Summer 2018.

- Faculty advisory committee assists in high-level school policy decisions, and interacts with COE and institute level committees. Must be nominated and elected by ME faculty vote to serve.

Undergraduate Committee Member Fall 2015- Summer 2018.

- Participated in undergraduate committee meetings, reviewed new course proposals and GT ME student exit surveys.
- Completed ME ABET CLASS Evaluations:
  ME 3180 Machine Design, Fall 2014, Fall 2015, Spring 2017.
  ME 4182, Capstone Design, Fall 2016
- Completed ME Undergraduate Committee Curriculum Evaluation
  COE 3001 Fall 2015..

Women in Mechanical Engineering

- ME liaison to the College of Engineering's Women in Engineering.
- Collaborated with ME advisors to organize a ME Women's Chat during Gold Carpet Day (freshmen recruiting event) with a panel of female faculty and students to share their GaTech experiences and answer prospective female student questions.

Promotion of Undergrad Research

- Disseminated ME faculty undergrad research opportunities to ME undergraduate students.
- Organized, promoted, and awarded Air Products (AP) Research Scholarships and the AP Spring Symposium.

PACE Program

- Represented Georgia Institute of Technology School of Mechanical Engineering at 2014 PACE Global Annual Forum in Turin, Italy.

ME 1770 Academic Professional Search Committee

- Member of search committee- Fall 2015. Assisted with resume review, interviewing, and final hiring of candidates for ME 1770 Academic Professional position.

VI. HONORS AND AWARDS

- AES Department Teaching Award, Spring 2022
- WIE Teaching Excellence Award, Georgia Institute of Technology, Spring 2016
- Thank A Teacher Certificate, CETL, Georgia Institute of Technology, Spring 2015, Spring 2016

- ARCS Scholarship, University of Colorado at Boulder, 2012-2013.
- Leadership Development Program, Northrop Grumman Space Technology, 2007-2009. 20 employees selected out of 11,000.