# Annual Report 2018/19



TEXAS A&M UNIVERSITY AT QATAR Center for Teaching & Learning





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## NTR0



ince its inception, the CTL has endeavored to provide high quality programming and opportunities for engaged teaching and learning at Texas A&M University at Qatar. Judging by the number of faculty and students who have participated in CTL related activities, AY 18/19 was another very successful year. Highlights included a Fulbright Specialist grant awarded by the U.S. Department of State, Teaching Week featuring renowned engineering education experts Drs. Richard Felder and Rebecca Brent, and a One Book One Community event headlined by the author of *Factfulness*, Anna Rosling Rönnlund. In addition, the CTL partnered with the Shell-Tafawoq program to provide our students with real world exposure to fundamental aspects of project management. The CTL is also engaging in a dialogue with other Education City universities to develop opportunities for cross-campus teaching and learning interchanges. Through several other on-going activities including Lunch 'n Learns, a course redesign project, Transformative Educational Experience (TEE) grants, student success programs, and engineering enrichment courses, the CTL is focused on supporting the core strategic vision of our university: to be the premier provider of engineering education in the MENA region and beyond. We are implementing exciting new programming this year with a particular focus on forging industrial partnerships to help our students develop skill sets that will distinguish them as Aggie engineers.

Dr. Ashfaq Bengali
 Executive Director, Center for Teaching & Learning
 Professor of Chemistry, Science



### **Center for Teaching & Learning Highlights**



### Transformative Educational Experience Grant Winners 2018/19

**A Toolkit for Technical Communication in Qatar** Dr. Amy Hodges (Liberal Arts), Aalaa Abdalla (student), Midhat Javaid (student)

### Engineering Sustainable Peace, 4th International Humanitarian Engineering Workshop

Dr. Hassan Bashir (Liberal Arts), Dr. Patrick Linke (CHEN), Dr. Zohreh Eslami\* (Liberal Arts) and Dr. James Rogers (Liberal Arts)

Enhancing Students' Learning Experience Through Immersion in 3D /Simulated Environment Dr. Hamid Parsaei (MEEN)

iMajlis: Prototype Online Platform for an Integrated Learning Community Dr. Bing Guo\* (MEEN), Yeran Soukiassian (Science), Lovai Shipchandler (IT)

### AMiRA Phase 1 — Aggies Mixed Reality Academy for Students and Educators

Dr. Konstantinos Kakosimos (CHEN), Dr. Ghada Salama (CHEN), Dr. Amy Hodges (Liberal Arts), Marcin Kozusnik (CHEN), Ali Sheharyar (Research Computing)

\*Recipients of funding presented at the April 2019 Transformational Teaching and Learning Conference at Texas A&M University

### Summer support for **7 faculty** participating from **4 programs**

**\$76,800** awarded to 5 TEE projects



Mid-term feedback sessions are conducted by the Instructional Consultant, who, upon a faculty member's request, collects and anonymizes student feedback about the course and condenses it into a helpful memo for faculty. "Educators with real-world engineering education experiences providing valuable insights ..."

Attendee's response to workshop facilitated by Drs. Richard Felder and Rebecca Brent during Teaching Week 2018

"Thank you for the feedback session. I think it is a very helpful thing, and I will surely make use of your services next semester also. [...] As far as this class goes, the points made were very good especially because this is the first time that I am teaching this class."

Faculty member's response to midterm feedback session in Fall 2018



### Teaching Week Workshop Survey Results

**97%** (40/41) respondents ranked the workshop as Good or Excellent

Instructional Consultant conducted **9 sessions** for **mid-term course** *evaluation feedback* Responses from **164** students **3 course observations** confidential, formative feedback



In Spring 2019, increased the number of tutors in order to cover more courses in the majors along with specific skills such as project management, and Python coding.

"I am looking forward to working with her again. I love how she listens to me and takes into consideration all my ideas and offer me her suggestions and ideas to make my work the best and convincing."

Student's response after tutoring session

to Learn (Barbara Oakley).

TEXAS A&M UNIVERSITY AT QATAR Center for Teaching & Learning



"We covered more than decided! Time well spent because the suggestions offered were obviously worth the time."

Student's response after tutoring session

The CTL is especially proud of providing communication support to the second-place winner of the UREP oral presentation competition, AlReem Al-Dosari, who presented on behalf of her UREP team under Dr. Nayef Alyafei's supervision.



"She is very patient and comfortable to talk to. CTL extends its warm welcoming gesture to all the students who walk through its door because I experienced it. I was and will always be satisfied and grateful for this center's help and support. ."

Student's response after tutoring session



Invent for the Planet 48-000 intensive design *experience* engaging 17 students from different disciplines in **Texas A&M** at Qatar who competed with 37 countries from around the world





"Instructors are very friendly, activities are genuinely fun and the interaction within us as students was amazing."

Student's response from engineering enrichment course

39% of all participants attended 12 diverse technical hands on learning courses **& 61 0/6 completed 12** professional development courses, customized for our engineering students.

"[This course gave me] the ability to find growth and gain knowledge in a really exciting way."

*Student's response from engineering enrichment course* 

33% increase in the total number of unique participants from the previous year in the training & professional development cycles 137 Students who completed 223 certificates



**28%** of the total degree-seeking undergraduate student population participated in **CTL-sponsored courses** 

"[l benefitted from the] personal development and the opportunity to be able to reflect and think about one's self."

Student's response from engineering enrichment course



### **FULBRIGHT SCHOLAR VISIT\***

Dr. Mary Deane Sorcinelli visited campus twice: She conducted a needs analysis for the CTL in Fall 2018 and visited in Spring 2019 as a Fulbright Scholar. Dr. Sorcinelli is a Professor Emeritus in the College of Education and served as Associate Provost for faculty development and as founding director of the Center for Teaching at the University of Massachusetts, Amherst. She is Co-PI of a grant from the National Science Foundation awarded to the Association of American Universities to study how universities can successfully coordinate multiple undergraduate STEM education reforms to achieve sustainable change (2016–2020).

### **TEACHING WEEK 2018\***

The CTL was privileged to host Drs. Brent and Felder during Fall 2018's Teaching Week. They conducted a variety of workshops and talks. Dr. Richard Mark Felder is Hoechst Celanese Professor Emeritus of Chemical Engineering at North Carolina State University. He is a co-author of *Elementary Principles of Chemical Processes*, which since 1978 has been used as the introductory chemical engineering text by roughly 90% of American universities including Texas A&M at Qatar students. Dr. Rebecca Brent is President of Education Designs, Inc., a consulting firm. Her areas of expertise are faculty development in engineering and the sciences, evaluation of educational programs at both precollege and college levels, and classroom uses of instructional technology. Together with her husband, Dr. Richard Felder, she co-authored *Teaching and Learning STEM: A Practical Guide* and has presented more than 400 teaching and faculty development workshops on campuses and at conferences throughout the United States and abroad.



\* For more specific information about visitor activities, please see the Teaching Innovation Events table on page 12.

### **MULTIVERSITY INITIATIVES**

The Qatar Teaching and Learning Forum (QTLF) was established in AY 18/19. The QTLF is a cross-campus initiative designed to promote conversations about pedagogy in Education City. By engaging faculty and staff across Education City, the Forum hopes to develop a learning community devoted to creative and effective teaching methods in Education City classrooms. Activities in AY 18/19 included a workshop about analytic writing hosted at Carnegie Mellon University at Qatar, as well as a workshop about successful teaching strategies at an international branch campus at Virginia Commonwealth University, Qatar. As part of her Fulbright visit, Dr. Mary Deane Sorcinelli met with QTLF representatives from other Education City partner universities. The focus of discussions was to develop high-impact initiatives and programs that will resonate with faculty and teaching staff, which in turn will enhance student learning.



### ONE BOOK ONE COMMUNITY AUTHOR VISIT

The CTL hosted Anna Rosling Rönnlund, co-author of Factfulness, to discuss her book. Anna was on campus for one day, during which she gave a public talk to an audience of 100+, as well as signed book copies for some of the 300+ persons from the TAMUQ community who had previously picked up a free copy of her book. Anna is the Vice President and Head of User Experience and Design at GapMinder, a foundation she co-founded with Hans and Ola Rosling to promote a fact-based worldview that everyone can understand. The CTL, in collaboration with the Library, distributed copies of *Factfulness* as part of its One Book, One Community campaign to bring together staff, students, researchers, and faculty on campus through book-focused events.



### **PROJECT-BASED LEARNING EXPERT\***

The CTL hosted Dr. Jeffrey Froyd in Spring 2019 to conduct workshops on project-based learning and publishing engineering education scholarship. Dr. Froyd is a Professor in the Department of Engineering Education at Ohio State University. He is recognized world wide for his contributions to engineering education, including integrated curriculum development and evaluation; adoption, institutionalization, and propagation of educational innovations; curriculum redesign; and faculty development. Dr. Froyd is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and the American Society for Engineering Education. He is the Editor-in-Chief for the *IEEE Transactions on Education*, a Senior Associate Editor for the *Journal on Engineering Education*, and an Associate Editor for the *International Journal on STEM Education*.

### **Teaching** Innovation

he CTL supports and encourages faculty and teaching staff in the development of innovative, student-centered methodologies to improve learning. It offers consultations and workshops among a variety of other opportunities for faculty and teaching staff. Opportunities include short investments such as Lunch 'n Learns, one-hour discussions about education, to longer investments, such as course redesign. These events are conducted throughout the year with guidance from the CTL.



### **COURSE REDESIGN**

With support from the CTL, four faculty participated in the inaugural cycle of course redesign, reworking aspects of specific courses such as assessment methods, course content delivery mechanisms, etc.

**Dr. Sarah Hillman**, Assistant Professor (English), Liberal Arts INST 222 Foundations of Education in a Multicultural Society

**Dr. Dhabia Al-Mohannadi**, *Assistant Professor, Chemical Engineering* CHEN 320 Numerical Analysis for Chemical Engineers **Dr. Bing Guo**, Associate Professor, Mechanical Engineering MEEN 315 Principles of Thermodynamics

### **Dr. Albertus Retnanto**, Professor of the Practice, Petroleum Engineering PETE 325 Petroleum Production Systems

### **TEACHING INNOVATION EVENTS**

	Lunch 'n Learns Discussions among faculty around an education topic	<ul> <li>Excerpt from <i>Teach Students How to Learn</i> by Saundra Yancey McGuire and Stephanie McGuire</li> <li>Student Evaluations of Teaching (excerpts from articles)</li> <li>Engineering Students' Motivation (excerpts from articles)</li> <li>The First Day of Class (excerpts from Dr. James Lang's work)</li> <li>Mentoring Networks for Faculty (led by Dr. Mary Deane Sorcinelli)</li> <li>Project-based learning (excerpts from articles)</li> <li>Final Exams (excerpts from articles)</li> </ul>
	Ripple Effects Discussions led by faculty to share expertise with their colleagues	<ul> <li>Project-based Learning by Dr. Michael Schuller, Mechanical Engineering, Texas A&amp;M at Qatar</li> <li>Putting together a Course, Dr. Berna Hascakir, Petroleum Engineering, Texas A&amp;M University</li> <li>Academic Integrity, Drs. Abdala (Chemical Engineering), Hillman (Liberal Arts) and Ruimi (Mechanical Engineering), Texas A&amp;M at Qatar</li> <li>Reflections on Teaching, Dr. Heather Wilkinson, Plant Pathology and Microbiology, Texas A&amp;M University</li> </ul>
	Teaching Week November 2018	<ul> <li>STEM Education: Current Issues and Future Directions Talk by Dr. Richard Felder, North Carolina State University, and Dr. Rebecca Brent, President, Educational Designs</li> <li>The Backgrounds and Skills of Students in My Class Vary Dramatically. How Can I Teach the Class Effectively? Workshop by Dr. Richard Felder (North Carolina State University) and Dr. Rebecca Brent (President, Educational Designs)</li> <li>AR/VR in Higher Education: Current Examples and Future Directions Talk by faculty and staff on campus involved in AR/VR</li> <li>Poster presentations by Transformative Educational Experiences (TEE) Grant winners</li> <li>Talk by Dr. Reza Tafreshi, recipient of 2018 Distinguished Achievement College level Award for Teaching from the Texas A&amp;M University Association of Former Students</li> <li>Open Forum for Faculty and Academic Staff</li> </ul>
	Workshops	<ul> <li>Writing for Publication, 3 part series Dr. Amy Hodges, Texas A&amp;M at Qatar</li> <li>Project-Based Learning Dr. Jeffrey Froyd, Ohio State University</li> <li>Publishing Your Scholarship in Engineering Education Dr. Jeffrey Froyd, Ohio State University</li> </ul>
	Talks	<ul> <li>Building a Culture of Teaching and Learning Talk by Dr. Mary Deane Sorcinelli, University of Massachusetts</li> <li>The State of Teaching in College Station Talk by Dr. Heather Wilkinson, Texas A&amp;M University</li> </ul>



### Unique Contact Points 2018-19 (total 137)



### Consultations for Faculty & Teaching Staff





Dr. Stylianos Tzortzakis Professor of Physics



Maya Abi Akl Technical Laboratory Coordinator



Dr. Primal Vivin Pinto Technical Laboratory Coordinator

### Testimonial

In an effort to benefit students by investing heavily in teaching and learning, several essential changes were realized in the curriculum during the 18/19 academic year. Probably the most complex one was the restructuring of introductory engineering courses that were replaced by ENGR102, ENGR216, and ENGR217. The challenge and innovation in these courses emanate from the combination of science, engineering and linguistic skills.

Spring 2019 saw the first offering of ENGR 216, which combines the basic physical concepts of mechanics with engineering applications and methodologies. A significant part of this course is lab work, where the students are invited to discover, verify and apply physics laws in various engineering projects. Students actively engage throughout the lab, using scientific knowledge with critical thinking and questioning not only for identifying the solution, but also for addressing questions on the precision of their measurements as well as sources of errors. As with all projects, reporting of the results is the final crucial step. Successful reporting relies on writing and oral skills to communicate scientific concepts. Here the CTL played an instrumental role.

Dr. Amy Hodges and Dr. Mysti Rudd from the CTL, in close cooperation and coordination with the Physics faculty (Dr. Stylianos Tzortzakis) and TLCs (Dr. Primal Pinto and Maya Abi Akl), provided instrumental input and assistance to the students. At the beginning of the semester, they shared and discussed guidelines and instructions with the students on the structure and methodology for writing high-quality reports as well as for preparing professional presentations. Their involvement lasted throughout the semester with adapted and continuous feedback to the students, for improving and addressing gaps identified at different levels.

Spring 2019's ENGR216 was a teaching and learning innovation "par excellence" for both the teaching staff as well as the students, who, in struggling with the demanding work load, also learned.

— Dr. Stylianos Tzortzakis, Professor of Physics, Science

### **Student** *Engineering Enrichment*

he CTL offers a co-curricular program designed to inspire students and enrich their knowledge with a unique set of skills that distinguishes them among engineers. It offers exceptional hands-on learning experiences and professional development opportunities that drive students' innovative and entrepreneurial mindsets, and prepare them for the job market.

> Aisha Hussain and Raghad Al-Sulaiti, two mechanical engineering students received the recently established Engineering Enrichment Achievement Award in the annual certification ceremony.

### Training Cycles Statistics

Number of Enrolled Students per Major & Gender





Collaborations with Texas A&M at Qatar industry partners to apply theoretical knowledge in practice and highlight the workplace experience:

### **21** students

participated in **General Electric's** aviation on-wing support learning experience.

### **18** students

completed an intensive Project Management course (4 weeks virtual and 1 week face-to-face) with **Tafawoq, Qatar Shell.** 

**QatarGas** developed and delivered a petroleum engineering course.

### Student Engineering Enrichment Enrollment 2018/19



### ENGINEERING ENRICHMENT COURSES

- Advanced Presentation & PowerPoint Skills (2 days)
- Managing Safely IOSH (3 days)
- CNC Laser Cutting (1 day)

August

October

March

May

Total

- Certified SOLIDWORKS Associate Developer (3 days)
- Wooden Works using CNC Router (1day)
- Introduction to Python (3 days)
- Building & Activating 3D Printers (3 days)
- General Electric Aviation Training (1 day, off-campus)
- Effective Coaching & Mentoring Skills (2 days)
- Managing Safely IOSH (3 days)
- Engineering Leadership for Emerging Leaders (2.5 days)
- Personal & Career Development for Engineers (2 days)
- December ¬ Managing & Leading Change (2 days)
  - Introduction to CNC Machining 1 (3 days)
  - Introduction to CNC Machining 2 (3 days)
  - Emotional Intelligence & Diversity (2 days)
  - Building & Activating 3D Printers (3 days)
  - Electric Vehicle Design & Manufacturing (2 days)
  - Working Safely IOSH (1 day)
  - Public Speaking & Communication (2 days)
  - Introduction to CNC Machining (3 days)
  - Contributing to Projects Tafawoq; Qatar Shell (4 weeks)
  - Multiphase Flow: Theory & Practice QatarGas (2 days)
  - Critical Thinking & Problem Solving (2 days)

24 courses

14

### Participation by Classification (total 223)



### Students Registering for Multiple Courses (total 223)



According to the 2017/18 Texas A&M at Qatar graduating students' survey, the number of students attending the engineering enrichment courses increased by 20% (from 32 to 49) out of 78 survey participants from the previous year. Most of them (73%) were extremely likely to recommend these courses to others as it added value to their learning experience and preparation for the workplace environment. Additionally, the end of the training cycles' surveys indicated positive feedback, as shown in the graph below:

### End of Training Cycles Survey Results Academic Year 2018/19

TO Satisfied with the overall quality of the course

75% Valued the importance of Engineering Enrichment training courses

72% Agreed that course was a great learning experience regarding knowledge, skills, support, and hands-on learning

**87**<sup>0</sup>/ Highly recommend Engineering Enrichment courses to others

### Testimonial



During my time at the university, I did eight courses with the CTL engineering enrichment. They focused on technical and soft skills, as well as one training that I did with industry (at Siemens). Personally, my favorite ones were the hands-on courses where we have to learn about working with wood and laser cutting. In addition, I have completed a leadership course endorsed by ILM. It was a privilege to have the chance to get a certificate from an international institution here on campus. Overall, the courses were great. They were concise, delivered by experts, and they allowed me to learn skills that I did not get to learn in the classroom. Those skills helped me to develop professionally, and they complemented what I was learning inside the classroom. I would encourage all students to sign up for at least one enrichment course during their time at TAMUQ. It is a chance that they might not get at work. They will learn something new (free of charge) and see a different dimension to engineering applications.

 Aalaa Abdalla, Mechanical Engineering, Class of 2019 he CTL provides learning support for all students enrolled in TAMUQ courses, and we are pleased to report that nearly 50% of undergraduate students relied on our services in AY 2018/19. To pave the way for a smoother transition between succeeding academically in high school and thriving at university, we offer many types of learning support.

### Appointment Breakdown 2018/19 (total 1701)



# of appointments	1707
# of unique users	250
# of group tutoring appointments	219
# of different courses tutored	42
# of peer tutors trained	21
# of academic coaching appointments	79

### A Tutor's *Transformative* Journey

I have been tutoring my peers for the past two semesters, but I have been a tutee for the last two years. I never thought I would require a tutor in my freshman year, but very quickly I found myself seeking help for writing assignments. Not only did I receive help for my assignments, I got loads of advice with regards to studying, making progress, and succeeding in college life. My tutor also showed me how to approach professors with confidence and write them emails. With a few more sessions, I was inspired to apply for a tutoring position.

Tutoring has been a transformational experience in terms of my professional and personal growth. My biggest fear was to say "I don't know" for any questions my peers ask. So I prepared myself thoroughly for every session. However, this approach was inefficient because I am a student myself, and I have to face midterms, quizzes, and deadlines like any other student. I could not pretend to be a professor or messiah to save my peers from their problems.

My managers and senior co-tutors reminded me that it is okay to not know everything. Peer tutoring is unique because students can relate to other students. If I were to know everything, I would not relate well with my peers. Hence, the next time, when I came across a challenging physics problem during a session, we walked to the professor. The three of us sat together and discussed the problem.

So far I have tutored mostly freshman level courses, mainly ENGR 102, ENGR 216 and PHYS 206. I realized most of the first-year students who come for peer tutoring are shy and timid in nature. Rather than diving into the problem, I try to engage with them to



make them as comfortable as they could be. With new clients, I would typically ask them how they find the course and the professor, and also talk about my own struggles with that course. With my recurring clients, I start anywhere between their progress and that day's weather. Sometimes I also talk about my new shoes that I had bought on the weekend. At every session, I always encourage students to visit their professors and TAs in their office hours or make appointments with them. I also encourage them to participate in student organizations and activities outside academics.

Overall, while I assist my peers in their academics, my bigger goal is to make them feel comfortable in seeking help and using the resources available at our institution. My experience at CTL as a tutor is full of challenges and accomplishments. It's a challenge to deal with such a large number of people with different kinds of limitations, but a "thank you" at the end of a session is truly satisfying.

- Safin Bayes, Electrical Engineering, Class of 2021

### **In-class Workshops**

The CTL offers a diverse selection of workshops on demand that explore interdisciplinary writing, communication topics, creative and critical thinking, and peer review. Instructors may also request CTL staff to attend student presentations to provide formative feedback. We work with faculty to adapt our workshops and toolkits to meet assignment, course, and/or discipline needs, or to co-design new ways to support assignments and students. Workshops are usually conducted inside the classroom and are facilitated by a trained member of our staff.



### **IN-CLASS WORKSHOPS** - Brainstorm and Storyboarding - Business/Professional **Communication:** - Communication From Idea To Delivery - Team Contracts and Team-building - Individual and Team Presentations - Technical Writing Metacognitive and Study Skills Success Strategies - Goal Setting **¬** Time Management - Document Design (e.g. résumés, presentation, posters) Design - Creative Thinking - E-portfolios/Websites - Qualtrics Introduction to - iMovie **Production:** - App Design Processes & Tools - PowerPoint

### Caerlang wins Outstanding Tutor Award

Erlinda "Beth" Caerlang, writing consultant in the Center for Teaching & Learning, was awarded the first ever Outstanding Tutor Award at this year's Middle East–North Africa Writing Centers Alliance Conference in Beirut, Lebanon. The award recognizes tutors who provide exemplary service to students, writing centers and institutional communities. Beth meets with students in one-toone sessions, attends specific writing courses as a course-embedded tutor, co-leads workshops on writing-related topics and helps host events that promote the writing support programs in the CTL.



### **Testimonial**



Whenever I felt that a certain subject was giving me a hard time, I went to the CTL and asked for help. Although the CTL offers many services such as a quiet room to study with classmates, the service I like the most is peer tutoring. The tutors helped me a lot in the past two years; I like going to them because they have taken the courses and have a better understanding of the material and know the professor's expectations. I went to get Physics 206 tutoring and it really paid off in my mid-terms! I've tried almost all of the tutors, and they have been very helpful and friendly. I also frequently met with the writing consultants, Ms. Beth, Ms. Shauna and Ms. Abir. They helped me greatly in improving my writing, I've also worked with Ms. Sahar on my ENGL 210 presentations, preparing the outlines and presentation slides. I love studying in the CTL because it's a quiet space that's available till late at night.

### Majed Aref Al-Saad, Electrical Engineering, Class of 2021





Dr. Amy Hodges Instructional Assistant Professor (LA) Writing Across the Curriculum Coordinator, Teaching Innovation



Khadija Mahsud Instructional Consultant, Teaching Innovation

### STAFF



Vanessa Lina Administrative Coordinator II



Yasser Al-Hamidi Manager, Student Engineering Enrichment



Lana El-Ladki Scholastic Performance Specialist II, Student Engineering Enrichment



Dr. Mysti Rudd Instructional Associate Professor (LA) Director, Student Learning Support



Kelly Wilson Manager, Student Learning Support



Sahar Mari Program Coordinator II, Student Learning Support

### FACULTY

**Dr. Albertus Retnanto** *Professor of the Practice, Petroleum Engineering* 

**Dr. Annie Ruimi** Associate Professor, Mechanical Engineering

**Yeran Soukiassian** Senior Lecturer, Science

**Dr. Mohamed Nounou** *Professor, Chemical Engineering* 

**Dr. Jim Ji** Associate Professor, Electrical and Computer Engineering

**Dr. Sara Hillman** Assistant Professor, Liberal Arts

### STUDENTS

Aisha Al-Naemi Undergraduate student, Chemical Engineering

**Rashid Al-Heidous** *Undergraduate student, Chemical Engineering* 

### STAFF

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