
Bi-Annual Activity Report
Center for Advancing Faculty Excellence
Fall 2018-Spring 2020
Missouri University of Science & Technology

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MISSION AND VISION

Mission: The [Center for Advancing Faculty Excellence](#) promotes the success of Missouri S&T faculty as teaching-scholars at all stages of their careers.

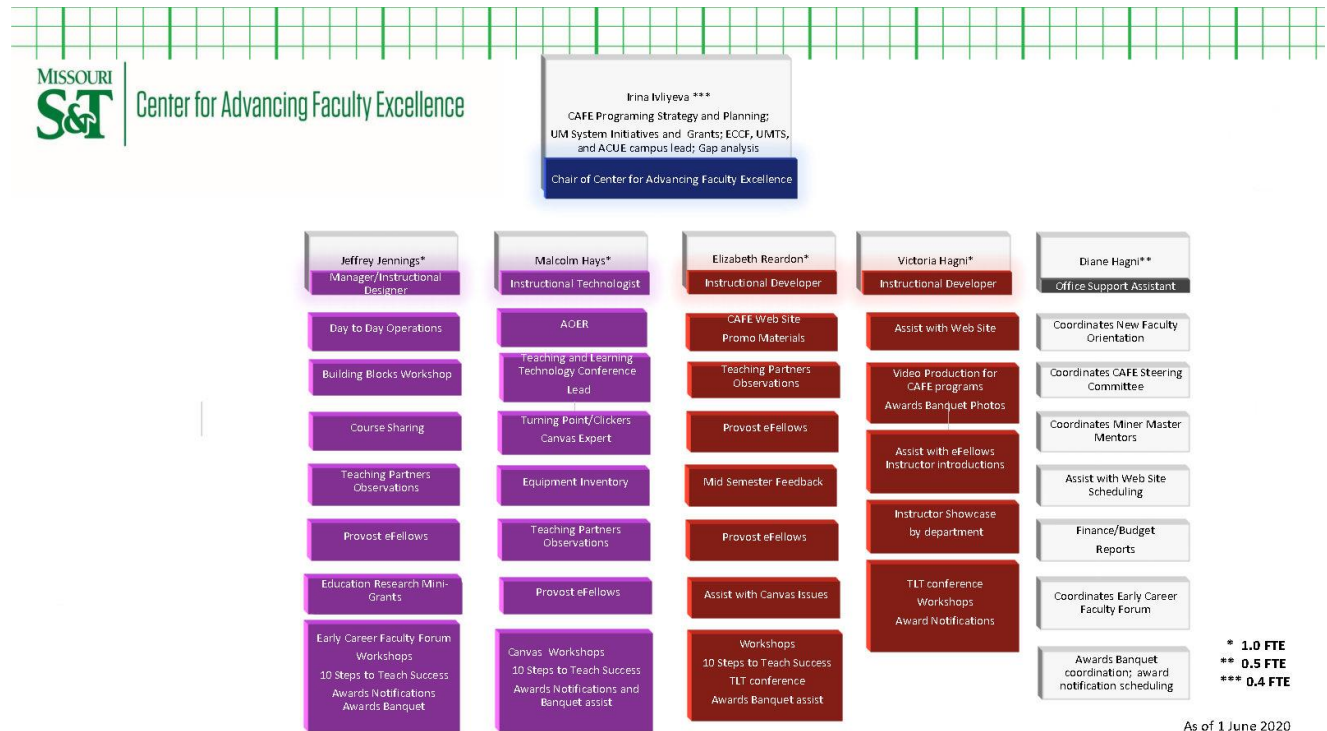
Vision: The Center for Advancing Faculty Excellence will be the focal point for enabling faculty to achieve excellence in, and balance among, the teaching, research and service missions of Missouri S&T.

The CAFE Steering Committee approved the mission and vision statements in 2019 and in 2020.

HISTORICAL TIMELINE

The Center for Educational Research and Teaching Innovation (CERTI) dissolved into CAFE the summer of 2018. The CERTI faculty steering committee was renamed the Committee for Educational Research and Teaching Innovation and serves as a faculty resource to the CAFE. The Instructional Design Team, formerly Educational Technology, merged with CAFE in February 2019.

STAFF & ORGANIZATIONAL CHART



Chair

The Center initially was led with a faculty chair and co-chair, each representing one of the campus' colleges, however, in July 2019, the leadership was trimmed to one chair. Dr. Irina Ivliyeva, professor of Russian in the College of Arts, Sciences, and Business, replaced Dr. Wayne Huebner, professor of materials science and engineering. The inaugural chair of CAFE was Dr. Larry Gragg, Chancellor's Professor of History.

The responsibilities of the CAFE chair are:

- Perform gap analysis of the campus' contributions to faculty education and development;
- Coordinate with existing faculty development and support offices;
- Work with deans and associate deans to apply cross-campus and college-specific faculty development opportunities;
- Assume responsibilities of the early career faculty forum head;
- Identify new opportunities for faculty education and development, including external funding;
- Coordinate existing faculty development offerings;
- Provide oversight to:
 - Early career faculty development
 - Teaching and learning programs
 - Non-tenure track faculty development

CAFE Support Staff

Abby Bigg, full time coordinator, resigned her position to move out of state in May 2019. There was no backfill for her position, instead, a technology resource manager was hired on Feb. 1, 2020, to take on some of the coordinator's duties. The rest of the duties went to other staff members. Jeff Jennings, also an instructional designer with CAFE, was named the manager in February 2020.

Jeff Jennings, full-time technology resource manager, key responsibilities:

- Collaborate with campus units to coordinate professional development events about teaching and learning for faculty;
- Administer educational research mini-grants to include coordinating proposal review committee meetings, advertising grant program, updating program documents, collecting letters of intent and proposals, providing assistance to faculty in the program, creating rubric to evaluate proposals, ensuring deadlines are met, ensuring IRB approval is obtained;
- Create and distribute CAFE marketing materials;
- Coordinate development of new CAFE programs such as Ten Steps to Teaching Success and Miner Master Mentors;
- Compile and report bi-annual event attendance data, faculty participation summaries, and program participation numbers;
- Serve as a liaison to all academic areas that have interaction with CAFE;
- Coordinate program evaluation, assessment and improvement efforts.

Diane Hagni, half-time office support assistant III, key responsibilities:

- Provide financial reports and spreadsheets to CAFE chair;
- Greet visitors, answer phone and respond to email inquiries;
- Manage and maintain office supplies; create an inventory list;
- Schedule CAFE steering committee, staff meetings, retreats and telepresence meetings;
- Attend meetings, take minutes and type up reports;
- Edit content that is going out from CAFE;
- Assist provost's office with the campus faculty awards process;
- Coordinate, organize and advertise for the new faculty orientation and early career faculty forum series;
- Coordinate administration of the professional development travel grants for early career faculty;
- Establish and help maintain the CAFE website;
- Create and maintain office records; manage office files; update and create new soft and hard copy files as needed;
- Assist in preparing chairs and manager for meetings and events with agenda, supporting documentation and correspondence to attendees including updates;
- Develop a faculty professional development event calendar; coordinate, organize and advertise for all CAFE-related professional development events.

Malcolm Hays, full-time instructional technologist, key responsibilities:

- Provide technical support for technologies/services such as:
 - Canvas
 - TurningPoint
 - Panopto
 - Qualtrics
 - iThenticate
 - Kaltura
- Manage equipment checkout for certain technologies
 - iPads
 - wireless microphones
 - clickers
- Provide instructional design support for eFellows
- Facilitate Teaching Partners Program
- Serve as project manager for Teaching and Learning Technology Conference
- Organize and execute CAFE professional development workshops
- Help maintain and disseminate information through CAFE communication channels (website, eConnection, edumine)
- Assist provost's office with Faculty Awards Banquet
- Manage CAFE-related courses in Canvas (Ten Steps to Teaching Success; Online Design Course; etc.)

Beth Reardon, full-time instructional developer, key responsibilities:

- Reconcile purchase orders, travel and misc. items, and reconcile one cards; pay bills;
- Analyze, redesign and maintain CAFE website;
- Purchase office supplies and supplies for faculty events;
- Track software licenses and communicate with procurement;
- Manage Mid-Semester Feedback process and data;
- Provide Canvas administration;
- Provide iThenticate & Turnitin administration;
- Maintain course websites
 - 10 Steps to Teaching Success
 - Learning to Learn online
 - Start Here 4-week course
- Serve as back-up on help desk tickets;
- Serve as department timekeeper;
- Manage student workers;
- Manage key ordering for department;
- Write and maintain process documentation;
- Perform faculty consultations and other faculty assistance;
- Assist with course design and re-design;
- Provide presentation on Canvas basics for various student groups;
- Assist with CAFE marketing materials, including graphic design;

- Co-manage Twitter account;
- Manage Canvas course housed in sub-accounts
 - Public Course Index
 - Incompletes
- Assist with Course Sharing courses;
- Facilitate IT Knowledge Sharing monthly meeting.

Victoria Hagni, full-time instructional developer, key responsibilities:

- Create, develop, produce, and implement online course materials to assist instructors in their teaching mission;
- Provide support for equipment used in course material production (faculty/student) eStudio and mobile;
- Inventory current video processes, tools and services, and share these processes with others;
- Provide guidance and leadership to student workers who assist with video processes to ensure quality of production;
- Co-manage Twitter account.

CAFE AND THE MISSOURI S&T STRATEGIC PLAN

CAFE is a partner in Missouri S&T's strategic plan, namely Objective 2: Enhance student learning by supporting teaching excellence. CAFE programs and events promote teaching excellence through mentorship and programs that enrich the quality and effectiveness of teaching, and CAFE supports the development of innovative teaching methods and strategies. These standing CAFE programs specifically address the S&T Strategic Plan:

- [Miner Master Mentors](#)
 - [10 Steps to Teaching Success](#)
 - [Mid-Semester Feedback](#)
 - [Teaching Partners and Teaching Observations](#)
 - [eFellows Grant Program](#)
 - [Educational Research Mini-Grant Program](#)
 - Building Blocks Course Design Workshops
-

ACTIONS FROM GAP ANALYSIS REPORT

In 2017, CAFE Inaugural Chair Larry Gragg interviewed key people on campus who assess faculty performance: the president, chancellor, provost, deans, associate deans, department chairs, and a sample of faculty members who have served on the campus tenure and promotion committee. The chair also interviewed probationary faculty members, associate professors, full professors and non-tenure track professors to learn what they saw as the biggest challenges they faced as they progressed toward their professional goals. In total, more than 80 individuals were interviewed.

The final product of this extensive effort was a comprehensive gap analysis report to the provost in spring 2018 on conditions at Missouri S&T and recommendations on how best to enhance faculty development at all stages of faculty careers.

The following actions were taken or are ongoing to address the findings:

1. To address the challenge of providing more effective mentoring, CAFE established a cadre of “Miner Master Mentors” in 2018 to provide a resource for faculty beyond their departmental resources. These individuals are accomplished and respected senior tenured and NTT faculty from both colleges. The cadre now consists of [13 individuals](#), who provide mentoring in a voluntary fashion on the topics of research, teaching, service, leadership, promotion and tenure, non-tenure track faculty affairs, service learning and early career challenges. (See Appendix B for a report of activity.)
2. To address the clear need for more effective teaching dossiers, CAFE established a program called [“Ten Steps to Teaching Success.”](#) modeled on an effective program with a similar name pioneered at the University of Missouri-St. Louis. It was piloted in spring 2019 and a full implementation made in fall 2019. In spring 2020, there were 22 instructors enrolled in the program and one instructor had completed the program.
3. To address the clear need to provide more help to probationary faculty as they develop a research record, CAFE planned to establish a program called “Ten Steps to Research Success” following the “Ten Steps to Teaching Success” model, however, the program was halted before it got under way due to reductions in personnel and financial resources.
4. To address the challenges faced by mid-career faculty, CAFE established a mini-sabbatical program to fund three-to-four week opportunities for faculty to travel to other universities, research facilities, or industry to help them develop a new research program or to travel to workshops focused upon teaching for those seeking to develop new courses or ways of delivering those courses. This program was in operation from April 2018 until March 2019 and assisted nine faculty with a total of \$63,363 in funding. This program was eliminated in fiscal year 2020 due to budget reductions. (See Appendix C for a list of projects.)
5. CAFE expanded the professional development grant program to include all early career faculty to help them augment start-up packages to attend teaching or research conferences and develop national and international networks. Since 2017, 66 grants totaling \$59,689

have been made to early career faculty. After the budget reductions of spring 2019, a new model of funding was developed where early career faculty could access \$500 for the above-mentioned travels once every three semesters in order to spread out the limited funding more equitably. One-page reports on what transpired as a result of the grants can be found on the [CAFE website](#).

6. CAFE assumed responsibility for the Provost's eFellows program in 2018 to encourage further development of new courses and course delivery methods drawing upon the expertise of the instructional design staff. For the 2019 cycle, seven projects were funded at a rate of \$35,000 total; for the 2020 cycle, five projects were funded totaling \$20,000. (Go to the CAFE [website](#) for a list of funded projects.)
7. To promote the scholarship of teaching and learning, and continual inquiry into questions about student learning and success, CAFE continues to fund the Educational Research mini-grant program started by the Center for Educational Research and Teaching Innovation. For the 2019-2020 cycle, a total of \$15,428.89 was awarded for four faculty projects on topics such as digital badges and how they affect student attitudes to an early alert system for academically at-risk students. (Go to the CAFE [website](#) for a list of funded projects.)
8. To improve the programs and services of the CAFE, CAFE staff will continue researching the "best practices" in faculty development across the nation.
9. CAFE will continue to host the new faculty orientation, including contingency faculty in the appropriate sessions, and continue the Early Career Faculty Forums to support early career faculty in their transition to Missouri S&T.
10. To support faculty who currently serve in, or aspire to a leadership position, CAFE had planned to develop a leadership training summit, drawing upon the expertise of effective chairs at the Missouri S&T campus and in the University of Missouri System. However, that program was canceled before it got under way because the UM System was planning to do department chair training for all four campuses.

FACULTY EVENTS

[New Faculty Programs](#)

CAFE hosts a two-day new faculty orientation and bi-weekly forums throughout academic year for new and early career faculty, which includes all pre-tenure and pre-promotion full-time faculty, both tenure-track and non-tenure track. All faculty in this category are enrolled in the Canvas course New Faculty Programs, which contains a faculty handbook, resources from early career faculty events, and other information designed to assist new faculty. Department chairs are also enrolled in the course so that they can stay apprised of information available to their new faculty.

Early Career Faculty Forum

The CAFE team established the forum schedule forum based on successes experienced by previous Freshman Forums, surveys with new faculty, and recommendations from the CAFE steering committee. Forums are held every other Wednesday from 4-5 p.m. during the academic year. Presenters across campus are chosen by the CAFE team for each topic.

Fall 2018-Spring 2019 Early Career Faculty Forum Schedule and Attendance

Date	Topic	Number of Attendees
Aug. 22, 2018	Charting Your Path to Success	15
Sept. 5, 2018	Getting Started With Teaching	10
Sept. 5, 2018	Reception With the Chancellor	7-15
Sept. 19, 2018	Advising 101	11
Oct. 3, 2018	Finding Funding/Scholarship of Teaching and Learning	22
Oct. 17, 2018	Meet the Miner Master Mentors	4
Oct. 31, 2018	Choosing Course Materials/ Pre-Award Procedures	5
Nov. 14, 2018	Managing Classroom Challenges	6
Nov. 28, 2018	Professional Development Travel Grant Presentations	13
Jan. 30, 2019	Goal-Setting, Honors and Awards	10
Feb. 28, 2019	How Do Students Learn?	10
March 14, 2019	Supporting Students Facing Mental Health Challenges	8
March 20, 2019	History of Missouri S&T	35 (includes guests)
April 3, 2019	What's Important in Service?	4
April 17, 2019	Professional Development Travel Grant Presentations	variable
May 1, 2019	Promotion & Tenure	6

Fall 2019-Spring 2020 Early Career Faculty Forum Schedule and Attendance

Date	Topic	Number of Attendees
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Aug. 21, 2019	Charting Your Path to Success	4
Sept. 4, 2019	Teaching Effectiveness	4
Sept. 4, 2019	New Faculty Reception with the Chancellor	variable
Sept. 18, 2019	Advising 101 - The Basics of Advising Students	3
Oct. 2, 2019	Research Sponsors & Funding Opportunities	12
Oct.16, 2019	Pre-Award Activities & IRB	8
Oct. 30, 2019	Classroom Technologies	9
Nov. 13, 2019	CAFE Funding Opportunities/MyVita	9
Dec. 4, 2019	Active Teaching & Learning Strategies	5
Jan. 29, 2020	How Do Students Learn?	6
Feb. 12, 2020	Promotion & Tenure	2
Feb. 26, 2020	Research Centers	6
March 18, 2020	What's Important in Copyright?	Zoom (6)
April 1, 2020	Steps in Writing a Research Proposal	Zoom
April 15, 2020	Digital Literacy for Canvas	Zoom
April 29, 2020	NSF FastLane	Zoom

Attendance at New Faculty Orientation and Forums

Fifteen unique individuals attended one or both days of the New Faculty Orientation on Aug. 15-16, 2019; 15 faculty attended on day one and 12 on day two. Twenty-two individuals had been invited.

Evaluation of New Faculty Orientation and Early Career Faculty Forums

After the spring 2020 semester, a survey was sent out to all early career faculty enrolled in the New Faculty Programs Canvas course to gather feedback on what went well and what could be improved. See Appendix D for survey results.

Building Blocks Workshops

This workshop, which is a required component of the Ten Steps to Teaching Success program, uses "backwards" course design (*Understanding by Design*, Wiggins & McTighe, 2005) and focuses on essential student learning outcomes. A limited number of faculty, usually no more than 12, go through the workshop together. The one-day, 8-hour event has evolved into three half-days of instruction led by CAFE instructional designers. They are offered usually during the summer and winter breaks.

All-Campus Faculty Events

In addition to the New Faculty Orientation and the Early Career Faculty Forums, CAFE offered several other professional development events for faculty throughout the 2018-2019 and 2019-2020 academic year. These included:

Event Name AY 2018-2019	Date	Number of Attendees
Building Blocks Workshop	Aug. 15, 2018	7
Setting the Tone Through an Effective Syllabus	Aug. 16, 2018	18
Getting Started With Canvas	Aug. 17, 2018	13
Introducing the Master Mentors	Aug. 29, 2018	Not available
Lunch & Learn – Best Practices for Advising Graduate Students with faculty panel	Sept. 4, 2018	18
Results from the Gap Analysis of Faculty Development by Larry Gragg	Sept. 14, 2018	36
Assessment Techniques Part 1 – Rubrics with Instructional Design and Development	Sept. 20, 2018	33
Design Thinking Workshop	Oct. 11, 2018	25
Enhancing Your Research Visibility With Marketing and Communications	Oct. 19, 2018	21
Assessment Techniques Part 2 – Examples From Faculty	Oct. 25, 2018	22
Faculty Conversations at Work	Nov. 11, 2018	17
Assessment Techniques Part 3 – Time-Savings Tools	Nov. 16, 2018	22
Preparing for the Annual and Third Year Review	Nov. 27, 2018	17
Building Block Workshops (3, one-day events)	Jan. 7, 10, 15, 2019	25
Mini-Sabbatical Informational Luncheon	Feb. 8, 2019	14
Digital Literacy Lightning Rounds	Feb. 11, 2019	16
Teaching and Learning Technology Conference	March 14, 2019	206 participants/50 institutions
Writing a Teaching Philosophy, part 1	April 1, 2019	29
Inclusive Teaching Workshop	April 8, 2019	21

Event Name AY 2019-2020	Date	Number of Attendees*
Getting Started With Canvas	Aug. 15, 2019	16
Setting the Tone for an Effective Syllabus	Aug. 16, 2019	8
Non-Tenure Track Promotion Workshop	Sept. 10, 2019	Not available
Digital Literacy for Canvas	Oct. 7, 2019	28
Syllabus & Course Design for Ph.D.s and Postdocs	Oct. 21, 2019	12
Building Blocks Workshop	Jan. 14-16, 2020	12
Balancing Your Academic Life	Feb. 3, 2020	17
Strategies for Teaching Multiple Sections, Large Classes	Feb. 11, 2020	16
Mid-Career Faculty Challenges	Feb. 26, 2020	33, another 15 joined remotely
Fostering Interdisciplinary Engagement Using Creativity and Design Thinking: Rob Morgan Guest Speaker	March 2, 2020	15
Teaching and Learning Technology Conference	March 12, 2020	CANCELED due to COVID-19
Preparing for Remote Teaching workshops (Canvas, Panopto, Zoom)	March 13, 2020	85, another 25 joined remotely
Writing a Teaching Philosophy, part 2	May 20, 2020	11 remote participants, six facilitators

*In-person attendance numbers unless otherwise noted.

A breakdown of faculty participants by department can be found in Appendix E.

FACULTY CONSULTATIONS AND INTERACTIONS

Workshops and courses to enable remote teaching: On March 11, 2020, the campus was instructed to move to remote learning starting on March 16. The Center for Advancing Faculty Excellence staff in collaboration with the Civil, Architectural and Environmental Engineering department put

together workshops on March 13 to assist faculty moving to remote learning. The instructional designers conducted “how to” sessions for Panopto, Zoom and the basics of Canvas.

These sessions focused on instructors who had little to no experience in using the software packages or teaching online. The information covered was the basics of each software and how to use it for classes in the upcoming week and beyond. There were 85 participants including instructors, staff and administrators. The overall response from participants was positive and grateful for the sessions.

Office Hours: In response to overwhelming need for assistance during remote learning, CAFE started holding office hours for instructors via Zoom to answer questions, work through technology issues or brainstorm on appropriate assessments used during the remote learning. These office hours have continued through the end of the academic year.

One-on-one Faculty Interactions: During the Spring 2019 semester, CAFE started tracking the interactions with faculty members to gain an understanding of the time commitment and services we provide to faculty on a monthly basis. CAFE has interacted with 264 unique individuals for a total of 834 faculty/instructors/staff interactions from the beginning of tracking. This opportunity to work with instructors and staff is a great way to network and provide the services that CAFE offers to the campus.

Interactions by semester:

SP2019: CASB-35, CEC-28

SS2019: CASB-27, CEC-19

FS2019: CASB-105, CEC-78, Other-5

SP2020: CASB-284, CEC-230, Other-24

CAMPUS FACULTY AWARDS PROGRAM

In the spring of 2018, CAFE took over responsibility for the coordination of the Campus Faculty Awards Process. The process was moved up in the calendar year so that faculty would be honored with a banquet as well as any monetary award before the end of the year. Another addition was in-class surprise announcements with the Chancellor, Provost and/or CAFE chairs presenting a letter regarding the faculty member’s award in front of their classes or peers, whenever possible. The culmination of this process was a successful banquet where 72 awards were bestowed on faculty on Dec. 4, 2018, at the Havener Center. Awards were given for experiential learning, service learning, teaching, research, service, excellence and achievement as well as Outstanding Teaching Awards (OTA). CAFE introduced a new award of Sustained Excellence in Outstanding Teaching for those who had received the OTA nine out of the last 10 years.

For the 2019 banquet, it was a joint effort with the provost's office and CAFE to provide 75 faculty awards on Dec. 5. President Mun Choi and Chancellor Mo Dehghani were in attendance, made remarks and congratulated the award-winners. In 2019, CAFE once again helped coordinate in-class surprise announcements for as many award recipients as possible.

OTHER CAFE PROGRAMS

Mid-Semester Feedback

The Mid-Semester Feedback program allows instructors to solicit feedback from their students during the mid-point of the semester, allowing them to make course corrections before the end of the term. The process takes about 15 minutes of class time and uses the students' own smart phones. CAFE instructional designers compile results and are available to consult with faculty for further assistance about their course. Instructors who have participated have seen increased participation in end of course evaluations as well as increased CET scores. Go to Appendix F for participation data.

Teaching Partners Program

The Teaching Partners program is a voluntary, confidential opportunity for instructors who want to enhance their teaching through peer observation and feedback. Trained faculty mentors and instructional designers meet with interested instructors in a pre-observation meeting, observation of a class session, and post-observation follow-up meeting. Individualized feedback is provided in a collegial atmosphere. Instructors can ask for a report from the session to be included in their dossiers, however, no other reporting is provided.

As of Spring 2020, 24 instructors had been observed, with 15 coming from CASB and nine from CEC; 14 of them were tenure-track and 10 were non-tenure track. A total of 16 faculty members have been trained to observe classrooms.

For instructors who are not yet ready to be observed, the CAFE [website](#) lists a number of faculty who have open classrooms and welcome colleagues to observe them in order to improve their teaching.

CAFE COLLABORATIONS WITH CAMPUS, [UM SYSTEM CONSTITUENTS](#) AND BEYOND

CAFE is involved with a number of University of Missouri System initiatives including:

- UM Teaching Scholars, where the CAFE chair serves as the director of a cohort of second-year faculty, and plans learning experiences to help faculty progress in adopting a scholarly

approach to teaching. The UM System re-started the program in 2019 with 10 teaching scholars from S&T participating. Go [here](#) for more about the goals of the program.

- Scaling Instructional Excellence for Student Success is a system-wide initiative focused on improving quality instruction and ultimately student success, through intentional, high-quality professional development. The CAFE chair serves as the campus lead for this program, which will assist roughly 60 faculty in a 25-week, online program for training in either face-to-face or online teaching. Funding is provided by the National Association of System Heads, and the program content is provided by the Association of Colleges and University Educators (ACUE). Go [here](#) for more information.
- [Faculty Guild](#) is focused on improving student outcomes through personalized professional development for faculty with one faculty member per year from each college participating. The CAFE chair serves as facilitator of enrolling new faculty and reporting results back to the campus from the program.
- Both the CAFE chair and manager serve on the UM eLearning Initiative committee.
- CAFE staff help coordinate the course sharing program at Missouri S&T.
- CAFE staff support faculty who are enrolled in the four-week Online Course Design Start Here training provided through the system office of eLearning and the online teaching certification seminar.
- The CAFE chair and staff members serve on the planning committee of the University of Missouri-St. Louis' annual Focus on Teaching and Technology Conference.
- CAFE is also involved with helping faculty implement the Affordable and Open Educational Resources, a UM-System initiative.

Strategic Campus Meetings

Regarding campus collaborations, the CAFE chair meets monthly with the Missouri S&T provost, and once a semester with the deans of the two Missouri S&T colleges and the dean of the library. The CAFE chair presents at the Missouri S&T department chairs council meeting once per semester.

Assistance for Graduate Students

CAFE collaborates with the office of the vice chancellor of research and graduate studies to provide training for GTAs. Also, CAFE collaborated with the associate dean for research and external relations in CEC to provide teacher training seminars for up to 18 GAANN (Graduate Assistance in Areas of National Need) students on topics such as technology in the classroom, assessments, course design, engaging lectures and syllabus construction.

Working Relationship With IT

CAFE has active and productive working relationships with IT's Media Services, Academic Technology Support, Learning Environments, and Help Desk teams. CAFE helps them provide support for various instructional technologies such as Panopto, Canvas, and TurningPoint. CAFE also works with faculty to familiarize them with using classroom technology effectively. IT makes sure the technology in classrooms is working; CAFE helps faculty use it to its fullest potential. CAFE

also collaborates with IT Media Services to provide support for the instructors teaching distance courses. CAFE will continue to collaborate with IT as much as possible as they go through future transitions in their restructuring process.

Reaching Out Through Regional Conference

Through its annual Teaching and Learning Technology Conference, CAFE attracts approximately 200 participants from higher education, K-12, and other institutions from the region and beyond to network, share ideas about teaching and learning, and showcase the S&T campus.

OTHER SUPPORT OF FACULTY PROFESSIONAL DEVELOPMENT

Other ways that CAFE assisted in faculty development was through financial sponsorship of both the 2018 and 2019 UMSL Focus on Teaching and Technology Conference. These funds, in conjunction with other campus funds, provided gold sponsorship status for Missouri S&T, thus enabling all S&T faculty and staff to attend the conference free.

In 2018, \$10,000 was provided to each college through the associate deans for research and external affairs offices for faculty professional development activities.

CAFE STAFF PROFESSIONAL DEVELOPMENT

CAFE staff attended the 2019 UMSL Focus on Teaching and Technology Conference Sept. 26-27. Plans to attend virtually FTTC at UMSL on September 24-25, 2020; the Instructure Canvas conference in Nashville in the summer of 2020 was cancelled had to be canceled due to COVID-19, replaced by the virtual CanvasCon scheduled for October 15, 2020.

Three CAFE staff members completed certificates or degree programs in spring 2020:

- **Malcolm Hays** graduated from the Mizzou Online program in Spring 2020 with a Master of Education degree in Learning, Teaching, and Curriculum, with an emphasis in teaching English & Language Arts. For his capstone project, he designed an online short course centered around best practices of course design, starting with writing an effective teaching philosophy statement, and also covering the importance of sound learning outcomes, assessments, activities and analyzing significant learning factors.
- **Beth Reardon** completed a graduate certificate in Technical Communication from Missouri University of Science and Technology in Spring 2020. She plans on continuing to work

toward her masters' degree in Technical Communication. Beth also completed the Online Learning Consortiums' Instructional Design Mastery Series focused on course design, learning outcomes, assessment, instructional strategies, and course management and evaluation of courses that take place in various learning environments.

- **Jeff Jennings** graduated from University of Missouri-St. Louis in Spring 2020 with a Doctor of Education degree. The focus of his dissertation was on academic dishonesty and undergraduate engineering students. The title of his dissertation is "Academic Honesty, Professional Integrity, and Undergraduate Engineering Students: Exploring the Connections."
- **Irina Ivliyeva** successfully completed the yearlong University of Missouri System leadership development program; Columbia, Missouri, 2019-2020.

RECOMMENDATIONS

1. CAFE recommends that information on course evaluations be located on the Faculty Senate webpage or the provost's office website.

Prior to CAFE being formed, CERTI offered information about course evaluation processes and the link for instructors to look up their CET scores on its website as a courtesy to faculty due to a lack of information elsewhere. Once CERTI dissolved into CAFE, that information carried over to the CAFE website. However, the location of this information has led many instructors to conclude that CAFE is responsible for the administration of the surveys, the data gathering and/or the awards that go with the CET scores, when, in fact, it has no control over any of these processes. CAFE would like to recommend that the CAFE website only link to information on the Faculty Senate page or another page on the provost's office website to indicate which entity owns the processes.

2. CAFE recommends that an IT team be asked to head the services that Educational Technology team once provided regarding academic software and technology. These activities include processes for vetting new academic software products, reviewing their life cycles and authorizing purchases of new software for teaching. It is our understanding that the Office of eLearning (OeL) has such a group and the IT team designated at S&T would serve as a liaison to the OeL department.
3. CAFE recommends that increased training and resources be made available to help faculty get certified to teach online. CAFE would like to reevaluate the programs offered and readjust the priorities due to additional support for the Office of eLearning initiatives such as: Start Here: Online Design course, Online Teaching Certification Seminar and additional system wide initiatives like NASH/ACUE, UM Teaching Scholars and Faculty Guild.

Appendices

Appendix A - HISTORY OF CAFE

Provost Robert Marley initiated the development of the Center for Advancing Faculty Excellence in spring of 2017 to provide a focal point for faculty development from “hire to retire.” However, the concept of having a faculty development center at Missouri S&T started many years prior.

In 2003, Vice Provost of Graduate and Undergraduate Studies Harvest Collier wrote a proposal and established a center to foster student-teacher engagement and encourage strategies to transform S&T’s learning environment: The Center for Educational Research and Teaching Innovation (CERTI) began hosting faculty development events to further that mission.

In 2007, a handful of staff within IT formed an educational technology (EdTech) group tasked with helping faculty with technology in the classroom with an end toward improved learning. CERTI and EdTech began to collaborate to offer faculty professional development around teaching.

In 2009, an eLearning committee began looking at blended and online learning with staff from educational technology, IT, and other administrators. The committee’s goal was to identify and possibly address what needed to be adjusted to allow for blended and online learning. This began the start of a campus conversation around other teaching and learning issues.

Through new leadership and reorganization on campus in 2012, a recommendation was put forth by one of the reorganization committees to launch a faculty development center, which was well received by the campus. The eLearning Committee took this to heart and began developing plans that would bring together CERTI with educational technology to provide a teaching and learning center for faculty.

After a number of plans were unsuccessfully submitted to both the campus leadership as well as UM system leadership over several years, Provost Robert Marley convened a committee of faculty and administrators in late 2016 and charged them with developing the parameters and guidelines for a comprehensive faculty development center.

The original CAFE steering committee members and their titles at that time were: Anthony Petroy, assistant vice chancellor of Global Learning; Kate Drowne, associate dean of the College of Arts, Sciences and Business; Daryl Beetner, professor and chair of the electrical and computer engineering department; Mariesa Crow, vice provost of the Office of Sponsored Programs; Diane Hagni, CERTI coordinator; John Myers, associate dean of the College of Engineering and Computing; Melanie Mormile, associate provost for faculty affairs; Bill Fahrenholtz, Curators’ Distinguished Professor of ceramic engineering and director of New Faculty Programs; Jeff Schramm, associate professor and special assistant to the provost for eLearning; V.A. Samaranayake, Curators’

Distinguished Teaching Professor of mathematics and statistics; Caprice Moore, associate provost of administration; and Kris Swenson, professor and chair of English and technical communication.

This committee put forth nominees to the provost about who would lead the center in its inaugural year.

In the Spring 2019 the CAFE budget was cut by approximately 54 percent. Through a restructure of the Center, a smaller staff was equipped to maintain many of the programs that CAFE had provided previously, including Miner Master Mentors, 10 Steps to Teaching Success, Mid-Semester Feedback, the Teaching and Learning Technology Conference, Early Career Faculty Professional Development grants, eFellows grants and educational research mini-grants. The programs that were eliminated were the mini-sabbatical program for mid-career faculty, the special opportunity fund and the fund to public results of educational research. Programs that were reduced were educational research mini-grants (-\$19,000), professional development travel grants (-\$16,500), eFellows (-\$10,000) and Miner Master Mentors (-\$15,600).

In Spring 2019, the following personnel changes were made: the co-chair position was eliminated, the coordinator position was not filled, the senior director position was eliminated, an instructional designer position was eliminated and two instructional designer positions were vacant.

In Spring 2020, as a result of further budget cuts for FY 2021, one of the two remaining instructional designer positions was cut, and the second was reduced by \$18,000 to accommodate a 15 percent reduction. That position has not yet been filled.

Appendix B – MINER MASTER MENTOR PROGRAM PARTICIPATION REPORT

FALL 2018-SPRING 2020

Semester	#Contacts	#Mentors reporting	%CASB	%CEC	%Female	%Male
Fall 2018	80	10	43	57	25	75
Spring 2019	197	12	52	48	46	54
Fall 2019	103	8	66	34	46	54
Spring 2020	46	6	42	58	46	54

Semester	% assistant or asst. teaching/ research professors	% associate or associate teaching/ research professors	% professor or teaching professors	% other mentees
Fall 2018	63	11	20	6
Spring 2019	68	13	11	8
Fall 2019	67	14	7	12
Spring 2020	46	24	26	4

Top 3 subjects for mentoring sessions (in order of number of sessions devoted to that topic):

Fall 2018: Research, P&T, Teaching

Spring 2019: Teaching, P&T, Research

Fall 2019: Teaching, P&T, Research

Spring 2020: Career Development, P&T, Research

Appendix C – MINI-SABBATICAL PROGRAM REPORT

FALL 2018-SPRING 2019

Last name	First name	Title (at time of funding)	Department	Project	Grant Amount
Cudney	Beth	Associate professor	Engineering Management & Systems Engineering	Development of research proposal in partnership with Valencia College	\$8,000
Fu	Yanjie	Assistant professor	Computer Science	Collective representation in spatial temporal textural data environments	\$7,000
Guo	Zishan	Assistant professor	Computer Science	Visit ONERA as visiting scientist	\$8,000
Han	Daoru	Assistant professor	Mechanical & Aerospace Engineering	Visit Worcester Polytechnic Institute	\$8,000
Krueger	Merilee	Associate teaching professor	Psychological Science	Take classes at MU as part of EdD cohort	\$4,068
Lea	Bih-Ru	Associate professor	Business & Information Technology	Collaboration with ABB, Clemson and UMSL	\$7,402
Nah	Fiona	Professor	Business & Information Technology	Visit Carnegie Mellon	\$8,000
Wright	David	Associate professor	English & Technical Communication	Collaborate with Center for Smart Homes, England	\$7,993
Zhou	Caizhi	Associate professor	Materials Science & Engineering	Visit Los Alamos National Lab	\$7,900

Appendix D – RESULTS OF NEW FACULTY SURVEYS

2018 Results

- I feel like more sessions on technology and people can meet in small groups to discuss things.
- Sometimes it would be nice too to just have casual discussions with faculty on things they do that work.
- Advising 101 was also extremely helpful my first year as I had not advised before and was not familiar with technology to assist me with setting up advising appointments and keeping track of those.
- The Travel Grant Award Presentations and Funding for Innovative Teaching workshops were the most helpful, as they were of the most practical benefit (at least before CAFE's funding was cut).
- The Open Access Materials workshop was very frustrating, as the conversation veered off-topic very quickly. I would not eliminate it, but I think more could be done to ensure its relevance.
- A discussion of the "facts of life" on what it means to teach mostly engineering students and how to meet their expectations would be welcome.

2019 Results

- Have all faculty be a part of the student panel session, not just NTTs
- Research centers seemed to be a popular topic – incorporate into orientation or forums
- Add ice breaker activities to get faculty engaged earlier
- Canvas workshop more hands on and more focused so that they have at least one deliverable when finished
- Move orientation up one day? (Wednesday-Thursday, Aug. 19-20)
- Market the syllabus workshop with outcomes – what will faculty get out of it?

Appendix E – FACULTY ATTENDANCE AT ALL-CAMPUS CAFE EVENTS BY DEPARTMENT

AY 2018-2019, 18 events

College	Department	Number of Faculty Attending
CASB	Arts, Languages, & Philosophy	51
CASB	Biological Sciences	11
CASB	Business & Information Technology	17
CASB	Chemistry	11
CASB	Economics	2
CASB	English & Technical Communication	15
CASB	History & Political Science	19
CASB	Mathematics & Statistics	10
CASB	Physics	10
CASB	Psychological Science	17
CASB	Teacher Education & Certification	2
CEC	Chemical & Biochemical Engineering	18
CEC	Civil, Architectural & Environmental Engineering	13
CEC	Computer Science	18
CEC	Electrical & Computer Engineering	26
CEC	Engineering Management & Systems Engineering	26
CEC	Geosciences & Geological & Petroleum Engineering	13
CEC	Materials Science & Engineering	19
CEC	Mechanical & Aerospace Engineering	12
CEC	Mining & Nuclear Engineering	15
Total		325

**FACULTY ATTENDANCE AT ALL-CAMPUS CAFE EVENTS BY DEPARTMENT
AY 2019-2020, 12 events**

College	Department	Number of Faculty Attending
CASB	Arts, Languages, & Philosophy	17
CASB	Biological Sciences	11
CASB	Business & Information Technology	12
CASB	Chemistry	8
CASB	Economics	4
CASB	English & Technical Communication	9
CASB	History & Political Science	16
CASB	Mathematics & Statistics	9
CASB	Physics	2
CASB	Psychological Science	16
CASB	Teacher Education & Certification	3
CEC	Chemical & Biochemical Engineering	4
CEC	Civil, Architectural & Environmental Engineering	18
CEC	Computer Science	12
CEC	Electrical & Computer Engineering	15
CEC	Engineering Management & Systems Engineering	9
CEC	Geosciences & Geological & Petroleum Engineering	4
CEC	Materials Science & Engineering	9
CEC	Mechanical & Aerospace Engineering	6
CEC	Mining & Nuclear Engineering	5

Total **189**

Appendix F – [MID-SEMESTER FEEDBACK PROGRAM DATA](#)

Semester	Average Response Rate	CASB Courses	CEC Courses	Total Surveys	Average Score	Median Score	# Students Surveyed
Fall 2018	80.33%	16	15	31	2.89	3.03	789
Spring 2019	77.13%	16	29	45	2.97	3.22	1,341
Fall 2019	78.84%	58	51	109	3.07	3.17	2,388
Spring 2020	72.84%	24	39	64	2.98	3.21	1,336

Appendix G – GAP ANALYSIS ON FACULTY DEVELOPMENT

Gap Analysis Report

June 15, 2018

Prepared by Dr. Larry Gragg
Chair

Center for Advancing Faculty Excellence

Gap Analysis on Faculty Development at Missouri University of Science and Technology

The most critical element in the first year of the Center for Advancing Faculty Excellence (CAFE) has been the completion of a gap analysis regarding campus support of faculty development. What has Missouri S&T done well and where has the campus fallen short? What should CAFE do to enhance the performance of faculty?

This report, a response to those questions, is based largely upon 80 interviews. Thirty-one of the interviews were with those who assess faculty performance, ranging from University of Missouri President Mun Choi, Missouri S&T Interim Chancellor Chris Maples, and Provost Robert Marley down through deans, associate deans, department chairs and the four faculty members who last chaired the campus tenure and promotion committee. The rest of the interviews were with full-time faculty at all ranks, including non-tenure-track (NTT) faculty. In addition, three surveys of campus faculty have been helpful: a 2015 NTT survey, a 2016 Collaborative on Academic Careers in Higher Education (COACHE) survey, and a 2017 campus climate survey.

Expectations for Tenure and Promotion

The interviews and survey results demonstrate that probationary faculty generally have a fair grasp of their department's expectations in teaching, research and service for tenure and promotion to associate professor.

In research, they know that it is essential to maintain an active and consistent research agenda. However, they do not always have a sense of the specific metrics they need to hit for the annual average of sponsored research or in the average number of articles needed each year. Faculty in the disciplines requiring the publication of monographs in addition to journal articles do understand the necessity of publication of at least one book in a university press and several articles by their tenure year. In most disciplines the faculty understand the imperative of obtaining external grants to support their research agenda although the precise average figure per year is not clear. Clarity is least evident in those departments without written expectations, those that have experienced recent changes in department chairs, or those that are engaged in revising their written expectations.

In teaching, the workloads, which varied among the campus departments, were mostly stable for probationary faculty. As to quality of their teaching, most understand that they must exhibit continuous improvement in student learning and, in some cases, they understand that their student evaluation averages must be at or above the department and campus average.

In service, most faculty had minimal expectations so that they could enhance their research record.

Similarly, most assistant teaching faculty have a clear sense of expectations for them.¹ The typical teaching load for NTT faculty is three courses per semester, along with other duties that range from advising students and running laboratories to assuming accreditation responsibilities and serving on select department and campus committees.

While assistant professors and assistant teaching professors believe that they understand what is expected of them, at all levels of administration there are concerns with departmental expectations for teaching, research and service for probationary faculty. Some departments have crafted clear expectations for all three areas; others have not. That has led to a sense that the campus is suffering from inconsistency in the rigor of expectations. Complicating this problem is the belief that some who serve on the campus tenure and promotion committee too often evaluate dossiers through the lens of their department's expectations. This has made it imperative that department chairs craft cover letters that help both campus committee members and those who write external evaluation letters understand what the expectations are in teaching, research and service in their respective departments.

¹ Missouri University of Science and Technology Campus Climate Research Study, (Rankin and Associates, September 2017), 177. The COACHE survey results indicated that faculty saw "Expectations for Tenure" as a strength for the campus. See "Tenure and Promotion," Results of the COACHE Survey, 2016.

The widely held belief among associate professors, evidenced by both interviews with them and survey responses, is that departments have done a much better job of identifying expectations for mandatory tenure cases than for full professor cases. In many departments, there are no metrics to enable faculty members to gauge their progress. While it is evident that their research record will count the most, several faculty members indicated that there are increasing expectations for teaching. For example, departments expect them to develop new courses to enhance the curriculum of their majors while they maintain good student evaluation scores. In addition, there is a greater advising load once faculty become associate professors. Some explain that their department's expectations are evolving in the wake of the developing workload models.

Still, there was a general agreement that successful candidates for full professor must develop *independent, internationally recognized* records of research. There was also agreement that successful cases are inevitably built upon the research record of the candidate. Outstanding teaching will not suffice, but a poor teaching record could prevent campus committee approval. As one faculty member explained, "Great teaching cannot save you, but poor teaching can kill you."

Evaluation of Third-Year Reviews

All who assess faculty performance believe that there is value in a careful review of probationary faculty members beyond their annual reviews within their departments because such a process provides the perspectives of the dean or associate dean of the College and that of a member of the campus tenure and promotion committee. Most perceive the process is one that leads to helpful feedback for the faculty member under review. However, there is concern, particularly in the College of Engineering and Computing, that having the review in the third year is too late to benefit a probationary faculty member. They explain that it is difficult for many to catch up on sponsored research or to get a Ph.D. student at that stage. Those critical of the third-year review argue for a sequence of reviews in the second and fourth years. The first should be a "counseling" session -- one that acknowledges the progress that the candidate has made in teaching and research -- but also provides specific advice in areas that require improvement. For those who fall short of expectations, the department and College should offer appropriate mentoring and resources. The second session should be one that results in a frank assessment of the candidate's prospects for a successful mandatory tenure year. However, in the College of Arts, Sciences, and Business, three department chairs opposed the idea of a second-year review. They pointed out that in their disciplines two years is insufficient to gain a sense of a researcher's potential because some journals have a review process that is often quite lengthy with multiple revisions of manuscripts required. In addition, it usually takes a professor in the humanities more than two years to complete a monograph.

Most faculty who recently completed their third-year reviews, despite some reservations about some aspects of the process, saw it as helpful in their progress toward the mandatory tenure year. In particular, they appreciated the specific feedback the committee provided, which they saw as fair. For example, in some cases, the committee recommended that the faculty member not pursue multiple service activities or teach fewer courses to enable them to focus on their research efforts. In another case, the committee recommended that the candidate pursue external funding to support their research agenda. Some had accurately anticipated the outcome of the review because of the extensive annual reviews done by their department chairs. One faculty member was concerned going into the process because this person had heard that the outcomes tended to be negative and was pleased to discover the contrary. In one case, the faculty member was confused because the chair's letter was more negative than the tone of the discussion in the meeting. Those who had an opinion were split on whether the third or fourth year was the best for such a review. On balance, almost all saw the process as constructive, a useful way to learn about their strengths and areas needing work.

Evaluation of the Tenure and Promotion Process

The tenure and promotion process, at best, is challenging for all involved because there are separate deliberations at the department, area and campus levels. The area and campus committees include faculty from multiple departments who regularly see research dossiers in areas of specialization for which they have little or no familiarity. In some cases, faculty members participating in the process exercise three votes on an individual case -- at the department, area and campus levels. Once a case reaches the campus tenure and promotion committee, the faculty members involved are heavily reliant upon the department chair's cover letter and the external letters. Increasingly, they are also drawing upon the various recently developed metrics such as, h-index, Scopus, and Academic Analytics to assess the developing national reputation of a candidate.

Many concerns and questions emerged about the process:

1. There is not always a clear link between the written tenure and promotion policy and the decision reached by a department.
2. There may be too-heavy a reliance upon h-index, Scopus, and Academic Analytics as a short cut in assessing research records.
3. Department chairs' cover letters must be clear to external letter writers and campus committee members what the expectations are in their department for teaching, research and service accomplishments.
4. Should a faculty member have more than one vote in the tenure and promotion process? Would it be better to permit a faculty member to be part of the process at more than one level, but with only one vote? **In February 2018, Faculty Senate members voted to**

keep the current process permitting a faculty member to vote at each level of consideration in the tenure and promotion process.²

5. There is little common ground for judging research records in the different disciplines.
6. Departments, in some cases, are not getting “appropriate” people to write letters. Some are from institutions that have much higher expectations for tenure. It is not always clear what the relationship of the letter author is to the candidate. Some letters are too short to help the committee understand the candidate’s national standing.
7. It is not clear in some cases what the importance of the order of authors represents in cases. Is it more important to be first author or last author? Also, in too many cases, committee members could not discern what contribution the candidate was making to the scholarly output when there were papers with multiple-authors making up the research dossier.
8. Some are concerned with candidates publishing in new or relatively new journals just to increase the number of publications. There is also a concern with journals which require a payment to publish.
9. Some dossiers do not include an explanation of the relative importance of conference papers v. journal articles v. books. This is critical because their importance varies among academic disciplines.
10. Candidates’ statements and CVs do not always explain clearly what they have done since they arrived at S&T or what they have done since they became an associate professor.

Evaluation of Teaching and Teaching Dossiers for Tenure and Promotion Cases

Satisfaction varies considerably with the quality of teaching dossiers in tenure and promotion cases because there is no widely accepted definition of effective teaching nor widespread agreement on how to measure teaching effectiveness. Most faculty members argue that the campus does a poor job on both counts, but largely they are critical because of the heavy reliance upon student evaluation scores. As one faculty member explained, the student evaluation scores, at best, measure how students view a professor’s work, but they do not demonstrate how effective a professor is in helping students learn more effectively. The low response rates on the student evaluations exacerbate the situation. There is also some concern that a few professors “game” the situation with incentives to students as well as the contention that the current instrument does not ask the right types of questions. On balance, most who assess faculty performance are dissatisfied with the teaching dossiers that come forward for third-year reviews and tenure and promotion cases.

² Faculty Senate Minutes, February 8, 2018, 6.

Those who assess faculty performance have identified elements that would contribute to good teaching dossiers, documents that include a multi-dimensional inventory of activities. Beyond a complete inclusion of student evaluations, they include many of the following: a clear departmental statement of expectations in teaching; a clear assessment of goals and approaches in teaching by the candidate; peer assessment letters that address both mastery of content and capability in pedagogy from several semesters, not only from the previous year; a thorough report from a departmental teaching mentoring team; a record of frequent participation in workshops both on campus through the Committee for Educational Research and Teaching Innovation (CERTI) and Educational Technology or the annual Teaching and Learning Technology Conference, and off-campus teaching workshops; examples of trying new teaching methods and technologies that led to greater student success; surveys of alumni or employers; and the implementation of service learning into one's courses. In all, a good teaching dossier demonstrates an engagement with the learning process, an engagement that has led to student success.

A minority view emerged that regardless of discipline, probationary faculty should not focus upon teaching because a strong research record is much more important. Strength in one's research record will make one's name known beyond the campus; rarely will an excellent teaching record do that unless the person engages in research in pedagogy.

Evaluation of Research Productivity on Campus

A majority of department chairs are pleased with the research dossiers in their department for third-year reviews and tenure and promotion cases, but others acknowledge that their faculty are neither attracting an adequate level of external support nor publishing an adequate number of articles in the appropriate journals. A few who look across campus at the faculty's research record are concerned that expectations in some departments are too low and that too often there is a willingness to accept a weak research record, fearing a loss of a faculty line. Those who monitor external funding conclude that the percentage of faculty without sponsored research is between 50 and 60 percent.

There are several views on how to increase sponsored research and publications that will enhance both a faculty member's national reputation and the visibility of the institution. These include: changing the culture in each department to one with ever-higher expectations; upper administration backing department chairs who push their faculty to reach higher research expectations; encouraging new faculty to engage less in peer mentoring on grant proposals and focus upon consulting experienced senior faculty for assistance; and providing more incentives on campus for outstanding scholarly achievement, such as better raises for the "rising stars."

As with teaching, it is not always clear that those assessing faculty performance, particularly on the campus tenure and promotion committee, understand the challenges of

research in each department. Too often members of that committee examine research productivity of a candidate through the lens of their own discipline rather than respecting the particular expectations of that candidate's discipline and department. For example, some faculty members pointed out that not all departments have Ph.D. programs and thus faculty members in those departments lack the assistance that graduate students provide, but are often compared to departments that do have Ph.D. programs.

The most common criticism, however, at all three ranks of professors, is that there is too much emphasis placed upon expenditures and not enough on publications, in particular, the quality of the publications not necessarily the number of publications. A common concern is that the campus is moving away from valuing the quality of candidates' scholarly work and its impact. To be sure, the campus uses a number of metrics: number of Ph.D. and M.S. students graduated, presentations at conferences, number of journal articles and books, and number of citations of a faculty member's work. However, collectively, some argue that these metrics do not address scholarly excellence, and those faculty members rely more upon external letters to draw conclusions about excellence.

Some chairs, while acknowledging the need for better research productivity, worry that the current focus on increasing sponsored research will harm the long tradition of the campus' commitment to quality undergraduate teaching.

Barriers in Progress to Tenure and Promotion

Among probationary faculty, only one mentioned that he or she had yet to encounter barriers. However, most noted two or more barriers to their progress. They ranged from lack of adequate lab space, large classes and classroom management challenges to conflicting goals of campus and UM System leadership. The most common perceived barriers for probationary faculty were more help in preparing proposals to NSF and NIH and the need for a stronger pool of Ph.D. students.

Associate professors identified several barriers, including an absence of a culture in the department that promotes the success of all faculty; heavy teaching loads; too few or no teaching assistants; an inadequate infrastructure to support research; too little time to devote to research; too few qualified Ph.D. students; having enough time to be successful in multiple research, teaching, and service projects; dealing with a frustration that excellence in teaching does not lead to promotion to full professor; and a perception that gender, race and religion has hindered some faculty. Almost one-third of the associate professors indicated that the chief barrier was their own choices. Rather than aggressively pursuing a research agenda, they found greater professional satisfaction in improving their courses and taking on substantial service obligations for the department and campus, including outreach activities.

Almost half of the full professors explained that had encountered no barriers, and that faculty members at times were responsible for not gaining promotion to full professor

because they did not take the initiative in developing an appropriately strong scholarly record.

Quality of Mentoring on Campus

All who assess faculty performance acknowledge the importance of mentoring for faculty, particularly for probationary faculty, however, the approaches to mentoring vary across the campus. In some departments the chair is the critical figure, making clear to new faculty members their departmental expectations and consistently monitoring faculty performance. Other departments utilize an informal process encouraging new faculty members to engage with a number of senior faculty members on questions and concerns dealing with both teaching and research. A few departments have a formal mentoring process including a teaching mentoring team and a research mentoring team. Both provide annual reports to the department chair. Although there were a few notable exceptions, the majority of faculty members interviewed agreed that they had the benefit of feedback from their departments on their progress or lack thereof toward tenure. Beyond these efforts, some probationary faculty take the initiative to seek either teaching or research mentors outside of their department both on and off campus.³ Nearly 60 percent of those responding to the 2017 campus climate survey either “strongly agreed” or “agreed” that they “felt supported and mentored during the tenure-track years.”⁴

Although most faculty conclude that mentoring is largely effective for probationary faculty, they argue that there is little help for associate professors to better prepare them to build an appropriate case for full professor.⁵ Associate professors who experienced formal feedback identified the department chair as the key individual. These chairs normally, in their annual reviews of faculty, explained what associate professors needed to do to be successful; for example, increase the number of publications or the number of grants. Others indicated that annual reviews were of slight help -- just a pat on the back that they were meeting expectations -- but not indicating if the faculty member was on track to a successful promotion case. A clear majority indicated that they never had formal feedback on their progress to full professor. However, for several, informal mentoring from senior colleagues was quite helpful. In a handful of cases, probationary faculty members reported no feedback at all, formal or informal.

³ One among those who assess faculty performance noted a concern that too often probationary faculty seek mentoring advice from peers rather than from senior faculty particularly in grant preparation. Another has observed that there too often is a lack of urgency among assistant professors in addressing the challenges in meeting the requirements for tenure.

⁴ Climate Research Study, 171.

⁵ “Tenure and Promotion,” COACHE results indicated that this was a concern for expectations as a teacher, a scholar, an advisor and a colleague.

Nature of Assistance from Departments, Colleges, Campus and UM System

Departments have assisted virtually all probationary faculty with limited teaching and service loads, adequate start-up packages, funds for travel or new software, and good labs. In one case, a faculty member benefited from having both a teaching mentoring team and research mentoring team. A few noted that they had not had help from either their College office or the campus. However, most noted the College's role in their start-up package, or in providing seed money for grant proposals, or for funding undergraduate research, or for travel funds for a class trip. Most acknowledge the campus's role in helpful CERTI workshops, teaching mini-grants, and the assistance of educational technology. Several have grants or are applying for grants from the UM System Research Board.

Almost all associate professors identified help from their department, their College office, the campus, or the UM System in their quest to become a full professor. Department chairs were noted as being most helpful in providing reduced teaching loads, funds for travel, or endorsing sabbatical leaves. Deans have helped with course buy-outs and funds to offset publication costs and to support travel. CERTI, educational technology, and the Teaching and Learning Conference have been significant for some. The UM System Leadership Development Program and the New Faculty Scholars program also played a role for a few. A couple noted little or no help from the College office or the campus, but, as one faculty member explained, they expected none.

Most NTT faculty have had various types of support from their departments: clear policies and expectations, funds for travel to workshops, informal mentoring from senior colleagues, and freedom to experiment with courses. In some instances, College offices have assisted NTT faculty with some limited travel funds. Campus support, through CERTI, educational technology, eFellows, and mini-grants has been substantial for NTT faculty. Most importantly, a majority of NTT faculty have been treated well by their departmental colleagues and have not been viewed as "second class" citizens.⁶

The Challenge of the Mid-Career Professor

All agreed that the campus has several faculty members who have hit a point in their career where they are no longer making progress toward promotion to full professor. A few characterize them as running out the clock, or just hanging on, however, most see their colleagues as faculty members who want to continue making a contribution to their department and the campus.

⁶ The 2015 NTT Survey indicated that those faculty perceived that segments of the campus valued them differently. 83% felt respected by their students, 57% believed that department colleagues valued them, but only 31% felt that the campus administration valued them. See Executive Summary of Questionnaire for Non-Tenure Track Faculty, 2015.

Many offered explanations:

1. Some associate professors have misconceptions about what is needed to achieve full professorship.
2. Some associate professors have unrealistic understandings of how they are doing, not understanding that their record does not measure up to the achievements of full professors in their department.
3. There appears to be little mentoring for those seeking promotion to full professor.
4. Some are exhausted after the stressful mandatory tenure year.
5. Funding sources they had depended upon are no longer available.
6. Some feel underappreciated, particularly in compensation, become demoralized, and give up. Seeing new assistant professors coming in at higher salaries exacerbates the problem.

Suggested ways to address the situation are as various as the explanations for why it happens:

1. A department chair or a mentor could prevent some of these issues by meeting with a faculty member soon after they have gained tenure with promotion to associate professor and help them develop a plan to help make promotion to full professor. Newly minted associate professors are often too ambitious. They may want to have an opportunity for leadership positions, but neglect to do the things essential to achieve that -- developing a record that will gain them promotion to full professor. They need mentoring to help them plan how to realistically realize their goals.
2. For those who make little progress, despite such mentoring, it must be made clear that they are the ones who must take the initiative. It cannot and should not be imposed by a department chair because they have little leverage to force faculty members to make meaningful changes.
3. Once a faculty member expresses an interest in moving forward, it is essential to determine what makes them passionate about their work -- research, teaching, service, or leadership. One approach could be to ask such a faculty member what campus or UM System award -- teaching, research, or service -- appeals to them and then help them work toward that goal.
4. A chair could provide release time and resources to help them "jump start" their research.
5. A chair can help by re-assigning duties. If that reassignment moves them from significant research, there must still be a possibility for rewards from the department and the campus. Examples of meaningful activities include helping a department prepare for an accreditation review, working with student design teams, assisting with an organization like Engineers without Borders, taking the lead in the department's assessment review, chairing significant searches, serving as an associate chair, or becoming a mentor to junior faculty. Regardless of what it may be, most faculty members want to make an "authentic contribution" to their department and the campus.

Finally, some concluded that they saw no problem with faculty members retiring as associate professors as long as they continued to make valuable contributions to the success of their students and colleagues.

Should Research in Pedagogy be a Path for Tenure-Track Faculty to Pursue Tenure and Promotion?

While it is not unanimous, there is strong sentiment for this as an option for tenure-track faculty. However, those who support it quickly add that such a faculty member would have to replicate what traditional tenure-track faculty members have done. That is, they would have to demonstrate a national reputation for their research. The ways this could be demonstrated might include publishing the results of their research in the appropriate, top peer-reviewed journals on pedagogy in their field; securing funding for their research; developing digitally assisted learning approaches; organizing teaching workshops; giving plenary talks at national meetings, or developing successful study abroad opportunities. In other words, faculty members taking this approach must demonstrate that they are contributing new knowledge and that they have developed a national impact through their research.

Having such a faculty member in a department would be one meaningful way to enhance instruction, because this faculty member could provide guidance on best practices in their particular discipline. Some chairs, however, cautioned that providing such an opportunity for faculty would require a cultural shift in some, if not most, departments and would require substantial backing from the administration. A few of the faculty members who supported the idea worried that there may not be an adequate number of journals to provide an outlet for research in pedagogy. Others were supportive as long as the faculty member pursuing this path devoted part of their research time to traditional research in their particular discipline to better inform their research in pedagogy. Still, almost all endorsed the idea. As one professor noted, there are professors at Purdue, North Carolina State, Florida, and Colorado State in engineering who have successfully adopted this approach.

Interest in Seeking an Administrative Position

Faculty members at all levels are almost equally split on this. The positions that most attracted those who have an interest in serving in an administrative role are those that advance student success or the possibility of becoming a department chair, associate dean or dean. Most agreed that the campus provides little support or training for those considering seeking an administrative position. Further, one faculty member worried that if the campus did invest resources in training people for administrative positions, the few

opportunities for leadership on the campus might lead to the departure of some talented people.

Departmental Cultures

There is a great range of department cultures on the campus. In some departments there is an almost toxic culture where promotions to full professor are rare, or there is a sense that associate professors have been mistreated, or there is a perception that the current senior faculty have raised expectations higher than those they had faced when seeking promotion to full professor. It is no surprise that associate professors in those departments are intensely bitter and no longer make the effort required for promotion. Most faculty, however, point out that their department “definitely” or “absolutely” has a supportive culture. In those departments, it is an expectation that associate professors will move forward successfully. Chairs do all that they can and senior colleagues are excellent mentors in those departments. The chances of such a culture existing largely is reliant upon who is serving as chair and the quality of recent faculty hires. However, there are departments where, despite an encouraging culture, some associate professors have not made sufficient strides in developing international reputations.

Recommendations

Based on these findings, the CAFE makes the following recommendations to improve support for faculty at Missouri S&T:

1. All departments, if not currently revising expectations, should engage in revisions for tenure with promotion to associate professor and to full professor and expectations for non-tenure track faculty to reach associate teaching professor and teaching professor rank.
2. The campus, notably the senior leadership (and that of the UM System leadership), must make clear what the priorities are for faculty performance. Is the campus on a path to enhance dramatically graduate education and expenditures with accompanying increases in scholarly productivity, or does it intend to continue to be a campus with a balanced portfolio -- to improve undergraduate and graduate student success as well as it continues to improve its research record? Faculty members and department chairs need clear guidance to better utilize their resources. Some chairs indicated that confusion on the central direction the campus will be heading has made it difficult to mentor their junior faculty.
3. The campus must do a better job in evaluating teaching effectiveness. As preliminary steps in that direction, the chair of CAFE is a member of a University of Missouri System ad hoc committee working to produce a report at the end of the spring 2018 semester recommending an approach more comprehensive than relying upon student evaluations alone. The chair of CAFE has also convened a five-member campus ad hoc committee,

which included both the chair of the Faculty Senate Committee on Effective Teaching and the campus committee that selects the Outstanding Teaching Awards, to seek ways to improve the current process of student evaluations.

4. The campus would be well served to examine the questions posed in the section labeled **Evaluations of the Tenure and Promotion Process**. A good starting point would be to review “Missouri University of Science and Technology Promotion and Tenure Suggested Guidelines,” produced by Dr. Nancy Stone on June 27, 2016.

5. Given the response to the question **Should Research in Pedagogy be a Path for Tenure-Track Faculty to Pursue Tenure and Promotion?**, the campus should consider this as an option when making hiring decisions.

Actions CAFE Will Take

1. To address the challenge of providing more effective mentoring, CAFE will establish a cadre of “Master Mentors,” accomplished and respected senior tenured and NTT faculty, to provide a resource for faculty beyond their departmental resources.

2. To address the clear need for more effective teaching dossiers, CAFE will establish a program called “Ten Steps to Teaching Success,” modeled on an effective program with a similar name pioneered at the University of Missouri-St. Louis.

3. To address the clear need to provide more help to probationary faculty as they develop a research record, CAFE will establish a program called “Ten Steps to Research Success” that will follow the “Ten Steps to Teaching Success” model.

4. To address the challenges faced by mid-career faculty, CAFE will establish mini-sabbaticals to fund three-to-four week opportunities to travel to other universities, research facilities, or industry to help faculty develop a new research program or to fund three- to four-week opportunities (including NTT faculty) to travel to workshops focused upon teaching for those seeking to develop new courses or ways of delivering those courses.

5. CAFE will continue to fund professional development grants for probationary faculty to augment start up packages for early career faculty to attend teaching or research conferences and continue to develop national and international networks.

6. CAFE will continue to fund the Provost’s eFellows program to encourage further development of new courses and course delivery methods drawing upon the expertise of staff in educational technology.

7. To promote the scholarship of teaching and learning, and continual inquiry into questions about student learning and success, CAFE will continue to fund the Educational Research mini-grants started by the Center for Educational Research and Teaching Innovation.

8. To improve the programs and services of the CAFE, CAFE staff will continue researching the “best practices” in faculty development across the nation.

9. CAFE will continue to host the new faculty orientation, including contingency faculty in the appropriate sessions, and continue the Early Career Faculty Forums to support early career faculty in their transition to Missouri S&T.

10. To support faculty who current serve in, or aspire to a leadership position, CAFE will develop a leadership training summit, drawing upon the expertise of effective chairs at the Missouri S&T campus and in the University of Missouri System. Specifically, some department chairs requested training in the following:

- Helping faculty members preparing effective tenure and promotion dossiers and crafting effective cover letters and letters to external reviewers that clearly explain departmental expectations in research, teaching and service.
- Help with doing a better job in mentoring faculty at all levels of their career.
- Providing advice on what “carrots” exist to help chairs improve faculty productivity and ways to motivate faculty to have a meaningful impact on the campus.
- Help in framing advertisements to attract the right faculty for their department and the best way to form an effective search committee.

List of Interviewees

To those who graciously agreed to be interviewed for this project, my thanks. They understood that I would list their names in the report, and I assured them that I would not link their names to any of the comments above.

Mun Choi
Chris Maples
Robert Marley
Richard Brow
Steve Roberts
Daniel Forciniti
Cihan Dagli
David Duvernell
Kate Drowne
Bruce McMillin
Yinfa Ma
John Myers
John McManus
George Markowsky
Jerry Cohen
Joel Burken
David Borrok
Muthana Al-Dahan
Braden Lusk
Jim Drallmeier
Shannon Fogg
Susan Murray

Keng Siau
Kris Swenson
Audra Merfeld-Langston
Greg Hilmas
Matt O’Keefe
Richard Wlezien
Steve Clark
Dan Waddill
Lu Yiu
Yishu Zhou
Jason Murphy
Justin Pope
David Samson
Daozhi Han
James Musser
Michelle Schwartz
Alanna Krolikowski
Clayton Price
Terry Robertson
Scott Miller
Christi Luks
Rachel Schneider

Katie Shannon
Amardeep Kaur
Cheng Wang
Kate Sheppard
Joshua Schlegel
Petra DeWitt
Jonghyun Park
Fateme Rezaei
Julie Semon
Ana Ichim
Nathan Twyman
Hongxian Zhang
Dan Reardon
Steve Raper
David Wright
Ron Frank
Klaus Woelk
Shari Dunn-Norman
David Enke
Shoab Usman
David Westenberg
Doug Ludlow

Doug Bristow
Francisca Oboh-Ikuenobe
Mariesa Crow
Kelly Liu
Michael Davis
Thomas Vojta
Gayla Olbricht
Diana Ahmad
Nancy Stone
Fiona Nah
Melanie Mormile
Mark Fitch
Richard Hall

Miner Master Mentors

The gap analysis research revealed that the quality of mentoring varied among departments and, specifically, more mentoring was needed for post-tenure faculty. As a result, CAFE will launch the Miner Master Mentors (M³) program in fall 2018 to provide confidential mentoring by a cadre of accomplished and respected Missouri S&T faculty. Master Mentors is a completely voluntary program and confidential for mentees. The mentors are available as a resource to all tenure-track, tenured, non-tenure track, and contingent faculty beyond their S&T departmental resources. The Master Mentors have a collective breadth of expertise to provide meaningful and accurate advice and information regarding all aspects of faculty professional development, including but not limited to:

- Research
- Teaching
- Service & Leadership
- Promotion and Tenure
- Non-Tenure Track Faculty Affairs
- Service Learning
- Early Career Challenges

The inaugural Master Mentors are: Mariesa Crow, Xiaoping Du, Bill Fahrenholtz, Stephen Gao, Irina Ivliyeva, Merilee Krueger, Scott Miller, Melanie Mormile, Dan Reardon, Joan Schuman and Bob Schwartz. The CAFE chairs will also serve as Master Mentors.

Ten Steps to Teaching Success

The gap analysis research revealed a clear need for more effective teaching dossiers. As a result, CAFE is developing a program called “Ten Steps to Teaching Success,” modeled on an effective program with a similar name pioneered by Andy Goodman, Director of the Center for Teaching and Learning at the University of Missouri-St. Louis. The main purpose of the program is to provide a path for all tenure-track and non-tenure track professors to try new teaching strategies, explore best teaching practices, and practice reflective teaching. This program is designed to be completed over a five year period.

It includes both required and optional components, for a total of ten experiences. The required components are:

1. Building Blocks workshop for course alignment with Educational Technology instructional designers (5 hour workshop)
2. Digital Literacy Lightning Rounds (1 hour workshop)
3. Mid-Semester Feedback conducted through Educational Technology
4. Teaching Partners Program or two classroom observations with reflection

5. A comprehensive teaching philosophy

Option components include attending general or disciplinary teaching conferences, attending other S&T teaching workshops conducted by CAFE or Educational Technology, participating in the Educational Research Mini-Grant program, the Provost eFellows program, or a diversity and inclusion mini-grant; as well as the Accent Modification Program, the Experiential/Service Learning Symposium, or classroom observation.

Currently this is a working draft that will be reviewed by department chairs and campus constituents to be revised. The goal is to roll out the program spring semester of 2019.