

College of Engineering & Mathematical Sciences (CEMS) Advising Plan – February 25, 2015

The current advising model in CEMS features a collaboration between faculty and staff. The Office of Student Services leads oversight of the effort with ongoing input from the CEMS Leadership Team. Below are descriptions of current services and new initiatives in advising college-wide (Part I); an outline of the current advising structure and practices in the units within CEMS (Part II); a description of the current practices for assessing advising (Part III); analysis of the current advising system (Part IV); and next steps the College plans to take to improve advising throughout CEMS (Part IV).

- I. COLLEGE-WIDE ADVISING
- II. CURRENT ADVISING STRUCTURE & PRACTICES BY UNIT
- III. CURRENT ADVISING ASSESSMENT PRACTICES
- IV. ANALYSIS
- V. NEXT STEPS

I. COLLEGE-WIDE ADVISING

A) Current Services

- ***Undeclared in CEMS***

Undeclared students in CEMS are assigned staff (CEMS Student Services) advisors upon entering the College as first year, internal transfers or external transfers. Students are reassigned to faculty advisors when they declare majors (in Mathematics, Statistics and Computer Science), or when they complete the first year engineering curriculum.

 - ❖ CEMS Student Services holds group advising sessions for School of Engineering (SoE) first year and undeclared students. Since most students who are undeclared in CEMS are in the process of choosing between one of the engineering fields, these group sessions are often sufficient for course planning purposes. Students who are considering other majors within the College or majors outside of the College are encouraged to schedule appointments with an advisor in CEMS Student Services for individualized advising.
 - ❖ See *First Year SoE Advising* (section II) for additional information on CEMS Student Services' group advising model, which includes Undeclared students in CEMS.
- ***Orientation Advising***

CEMS Student Services is responsible for the academic portion of the June Orientation program for incoming CEMS students. This includes delivering presentations to incoming students and their families about College processes, academic standards, academic integrity, and opportunities to get involved in the College, University and the Burlington community. It also includes follow-up presentations on course requirements and the mechanics of course registration. Student Services staff provide on-the-ground registration support to incoming students during Orientation programs.

- ***Transfer Student Advising***
CEMS Student Services staff provide initial academic advising and course scheduling support to all incoming CEMS transfer students. Student Services staff liaise with the Office of Transfer Affairs to ensure the integrity of students' transfer credit evaluations and CATS reports. They work with CEMS Department Chairs and Program Heads when necessary to ensure transfer students are advised into appropriate courses.
- ***Academic Support Advising***
CEMS Student Services refers students to various student support services, including:
 - ❖ Learning Cooperative
 - ❖ ACCESS
 - ❖ Counseling & Psychiatry Services
 - ❖ TRIO
 - ❖ Veterans Services
 - ❖ ALANA Student Center
 - ❖ LGBTQA Services
 - ❖ Career Center
 - ❖ Student Services Offices in other academic units
- ***Degree Completion Advising***
CEMS Student Services is responsible for certifying students for degrees. Student Services runs batch CATS reports (degree audits) for students with senior standing twice per year (fall and spring) and does outreach to students and faculty advisors regarding remaining requirements.
- ***Study Abroad Advising***
In collaboration with the Office of International Education (OIE) and the Office of Transfer Affairs, CEMS Student Services provides study abroad advising to all CEMS students. Each CEMS student who plans to study abroad is required to meet with CEMS Student Services as part of the study abroad approval process. In these meetings, Student Services staff discuss students' individual goals and how they translate into a wide array of study abroad options; transferability of courses; and the impact of studying abroad on students' progress toward degree.
- ***International Student Advising***
In collaboration with the OIE, CEMS Student Services provides advising services to international students. Student Services staff members serve as secondary academic advisors (and in some cases primary academic advisors) to all international students. CEMS Student Services does basic advising on visa requirements (as they relate to academics). Student Services staff provide supporting documentation to OIE for Reduced Course Loads (RCL's) and Curricular Practical Training (CPT). Student Services staff also advise CDE students in the Brazilian Scientific Mobility Program, and support them remotely with course placement and registration.

B) Recent Initiatives

- CEMS recently hired Alicia Ellis as the new in-house Internship Coordinator. Alicia began her duties full-time in January of 2015. She is working in partnership with the Career Center on career advising and internship program development for CEMS students.

- CEMS recently hired Matthew Manz as an Academic Advisor for International & Special Programs. Matt is serving as either a primary or secondary academic advisor to all international CEMS students. He also sits on the International Student Success Network.
- CEMS Student Services is facilitating the new CEMS Club Leadership Council under the direction of Genevieve Anthony (Academic Advisor for Student Services). The Council includes representatives from all CEMS student clubs and organizations. The Council meets monthly to share information and resources, discuss opportunities to collaborate, and to coordinate student recruitment events with CEMS Student Services. This also provides a forum for club leaders to share ideas with the College.
- CEMS Director of Student Success Joan “Rosi” Rosebush is piloting the CEMS Peer Mentors program. This program connects first year students with returning students, faculty, professionals in their chosen fields and potential employers.
- In collaboration with the UVM GreenHouse, CEMS is piloting a new Residential Learning Community (RLC). All CEMS first year students were invited to apply at the 2014 June Orientation and through follow-up communications. The Ecological Engineers Program (EEP) is an embedded community within the University’s GreenHouse RLC. Students in the Ecological Engineers Program work on green engineering projects (through their enrollment in NR 015) and attend relevant events together. Genevieve Anthony is actively involved with the program and advises all of the EEP students.

II. CURRENT ADVISING STRUCTURE & PRACTICES BY UNIT

Because of varied program sizes, student needs and faculty workloads, advising is managed differently within each unit in CEMS.

Department of Computer Science

Computer Science (CS) and Computer Science & Information Systems (CSIS) majors in CEMS are assigned faculty advisors upon entering the program as first year, internal transfers or external transfers.

- In the fall of 2014, CS started the practice of placing advising holds on the records of all CS and CSIS majors in both CEMS and CAS (previously holds were only placed on first year students’ records). The holds are removed when students meet with an advisor. Each CS faculty member holds a group advising session, setting aside a two-hour block to meet with his or her advisees. Advisees are invited to make one-on-one appointments with their advisors on an as-needed basis to discuss individual issues, such as difficulties in their classes, career options, graduate school, etc. CS majors start at different entry points and follow a flexible curriculum. Thus it is not effective or appropriate to separate student advising by year, since they may be in very different places in the CS curriculum.
- During group advising sessions, each student is required to update his or her graduation checklist and four-year curriculum plan. Students are also required to check their CATS report (degree audit) and review other academic metrics with their advisors.

- Each semester the CS Crew (the primary CS student organization) holds a peer advising night in which upper division CS majors share their perspectives and recommendations on upcoming classes. These are “student only” events.
- CS 050 (Seminar for new CS majors) will be moved from the spring to the fall semester. Beginning in the fall of 2015, the course will be offered every fall. The first day is spent discussing the structure of academic and career advising in CS. The instructor also discusses various curricula (the BSCS, the BS CSIS, and BACS in CAS) and orients students to prerequisite graphs, graduation checklists, and the four-year curriculum plan. Throughout the course of the semester students are introduced to their advisors as each CS faculty member gives one lecture in this course. A full class is dedicated to discussing career development for CS majors utilizing the Career Center’s 4 Year Plan for Career Success. Topics include resume development, interview skills, how to find an internship, and alternative ways to develop relevant skills.

Department of Mathematics & Statistics

Mathematics and Statistics majors in both CEMS and CAS are assigned faculty advisors upon entering the program as first years, internal transfers or external transfers.

- Math & Stat emphasizes the individual, personal relationship between the advisor and student. Students meet with their faculty advisors one-on-one to discuss courses, general requirements, work and career plans, and other issues. Information is largely relayed in person, in one-on-one meetings. Advising also happens less formally when faculty are approached by students in their classes for advice on course selection and sequencing.
- Math & Stat offers group advising for special topics. Examples include a career night in statistics and informational meetings on actuarial careers.
- In the fall of 2014, Math & Stat piloted peer advising sessions. Juniors and seniors met with first and second year students to provide advice on course selection and sequencing.
- Math & Stat maintains a [handbook for majors](#) on the department website.

School of Engineering (SoE)

Students in the first year SoE curriculum are assigned staff (CEMS Student Services) advisors upon entering the program as first year students, internal transfers or external transfers. Course selection for first year students is very straightforward. The SoE leadership believes that first year engineering students are best served by staff advisors with expertise in holistic advising and the training to guide students through the transition from the high school to college environment. Students are reassigned to faculty advisors in their program upon completion of the first year requirements. Once students reach the sophomore year, their advising needs are best met by faculty who can guide course selection and development in students’ particular areas of interest.

A) First Year SoE Advising

- CEMS Student Services holds group advising sessions for SoE first years and undeclared students. Students who require individualized assistance with course scheduling are encouraged to schedule appointments with an advisor in CEMS Student Services.

- CEMS Student Services group advising sessions are held in the weeks leading up to registration and cover the following topics:
 - ❖ Registration processes/procedures
 - ❖ Course requirements for engineering programs
 - ❖ Academic standards
 - ❖ Resources for academic support
 - ❖ Career Center's 4 Year Plan for Career Success
 - ❖ Transfer credit process
 - ❖ Opportunities to take summer/winter session courses
- As primary advisors, CEMS Student Services follow up on each academic alert that their advisees receive throughout a given semester.
- CEMS Student Services advisors regularly reach out to their advisees with messages about academic support services (such as math help sessions), deadlines (such as the final day to withdraw from classes), relevant campus events (such as CEMS alumni panels at the Career + Experience Hub), and sometimes with simple messages of encouragement.

B) Sophomore, Junior and Senior SoE Student Advising

Each summer, CEMS Student Services reviews advising assignments and redistributes engineering students who have completed first year curriculum to faculty advisors. Student Services endeavors to assign the lowest and highest achieving engineering students to strong, experienced advisors in order to support retention efforts. Each program within the SoE structures advising differently as described below:

Civil & Environmental Engineering (CEE)

- CEE faculty offer three group advising sessions each semester for sophomores, juniors and seniors. At each session, at least four CEE faculty members are available to assist students. The CEE Program Head attends all sessions to ensure that all students have been given consistent information. A representative from CEMS Student Services is also present at these sessions. These sessions are advertised via email and fliers posted throughout CEMS facilities. Students are encouraged to meet with their individual advisors for advising beyond coursework selection, such as professional development (e.g. finding internships, research experience, jobs, graduate school, CEE Accelerated MS degree, etc.)

Electrical Engineering (EE)

- With the exception of new hires, each faculty member advises a similar number of students: approximately a dozen at this time. With an experienced faculty and a relatively small student population, the EE program offers individualized, one-on-one advising. Advising appointments consist of discussions related to both coursework and career development.

Mechanical Engineering (ME)

- Two weeks are devoted to student advising each semester. Faculty display sign-up sheets on their office doors for students to book advising appointments. In past years, roughly one-third of the advisees met with their advisors. In the fall of 2014, the ME Program Head piloted a group advising session. This model achieved a higher

attendance rate (~60%). Therefore, ME is considering adopting this method for advising going forward.

III. CURRENT ADVISING ASSESSMENT PRACTICES

CEMS Student Services staff

All staff members receive thorough annual performance appraisals. Advising comprises as much as 50% of student services staff workloads. In previous years, assessment of advising performance has been based solely on observation and anecdotal information. Beginning with the summer of 2015, performance appraisals will incorporate student feedback from the inaugural annual advising survey (see further details in section V).

CEMS faculty

Consideration of faculty performance in the area of advising must balance the language of the Collective Bargaining Agreement (CBA), the University and College Reappointment, Promotion & Tenure guidelines, and the annual faculty evaluation guidelines of the different units in CEMS. It should be noted that, as per the [CEMS Faculty Workload and Teaching Policy](#) (2014), faculty are expected to allocate 2% of their workload effort to undergraduate advising. In a 50-hour workweek, this amounts to a little less than one hour each week. Given the huge disparities between the major to FTE faculty ratios in the academic units (>30:1 in Engineering and Computer Science and < 5:1 in Mathematics & Statistics), it is understandable that the units undertake their own methodologies for the delivery of advising. Further, Article 14.5.i of the CBA states: “The parties recognize that no single set of measures and methods can be prescribed to evaluate the quality of teaching or advising.”

It is fair to suggest that the practice in CEMS has been that teaching evaluations – as documented by course evaluations and peer visits – have been a proxy for the assessment of advising. Our plan (outlined later in this document) is to begin to isolate advising from teaching, and to begin to measure advising effort.

IV. ANALYSIS

The current advising structure in CEMS undoubtedly has both strengths and weaknesses. Some of these strengths and weaknesses may be identified when cross-referenced with advising literature. NACADA (the global community for academic advising) identifies and outlines several high-impact advising approaches in *Academic Advising Approaches: Strategies That Teach Students to Make the Most of College* (2013). These are not presented as standalone approaches, but rather as frameworks that may be employed when situationally appropriate. The common threads throughout the varied approaches include clear communication, a holistic view of the student experience and a system of shared responsibility between the advisor and student. In [Strengthening Advising at UVM](#) (2014), the Student Affairs Committee of the Faculty Senate reiterated the importance of both holistic, developmental advising and shared responsibility.

Because we have not had a formal mechanism in place for assessing advising at the college level, we are presently forced to rely on incomplete data and anecdotal information to assess our current strengths and weaknesses vis a vis advising. We look forward to a more robust assessment of our program once we've administered our first college-wide advising survey (see further details in section V).

The Office of Institutional Research recently shared data from the National Student of Student Engagement (NSSE) from the 2013-2014 CEMS first year class with the CEMS leadership. Though there is significant room for CEMS to improve in fostering an intellectual environment with sufficient support, we were very pleased with CEMS students' perceptions of academic advising. 61% of CEMS students rated their interactions with academic advisors as a 6 or 7 on a scale of 1 (poor) to 7 (excellent). This is 12 percentage points higher than the UVM average and almost 20 percentage points higher than our comparator group.

As *Strengthening Advising at UVM* notes, "the most notable strengths [of the present system of advising] are the many excellent, dedicated advisors." We might partially attribute the impressive numbers in the NSSE report to the approachable, engaged and committed staff in CEMS Student Services, who advise the vast majority of the CEMS first year student population. Advising for first year engineers is relatively "high touch", with advisors reaching out to students proactively, periodically sending encouraging messages, and responding to all academic alerts. All first year students in CEMS have advising holds on their records and must meet with an advisor – either individually or during a group session – before they can register for courses.

Some faculty advisors in CEMS are equally enthusiastic and engaged in their advising practice. Further, the CEMS faculty are well equipped to provide professional and graduate school advising. All have completed graduate programs and most have professional experience in their respective fields. Students regularly share with CEMS Student Services their appreciation for the guidance they've received from faculty in preparing for their academic and/or professional journeys.

Yet students also regularly share frustration with some aspects of the CEMS advising program. Some such frustrations clearly stem from confusion about the college's advising structure, which varies from program to program and year to year. For example, the CEE program disseminates information about their group advising sessions for upperclassmen through the SoE Office. The information about who should attend such sessions is not necessarily clear to the CEE students. Thus first-year students who should be engaging with CEMS Student Services inevitably show up at advising sessions for upperclassmen. Though advising sessions that are differentiated by program and year certainly make sense within the College's current structure, CEMS lacks a comprehensive communications strategy that clearly outlines this structure for students.

Given the ordered nature of many majors within CEMS – and the accreditation requirements of engineering in particular – advising in the college is often more "nuts and bolts" than the holistic, developmental programs described throughout NACADA's *Academic Advising Approaches*. As the college has grown, many of our programs have moved toward group advising models. While this may save time and work well for assisting students with course choices, we need to ensure that we create time and space for students to access their advisors for broader conversations. Though identifying the right mechanism for this may require further investigation, the research findings noting the importance of a holistic approach is overwhelming. Fostering an environment that supports such an approach is a top priority for CEMS.

Another weakness of the current CEMS advising system is the lack of clarity of responsibilities. While the ethos of shared responsibility between the student and advisor is informally employed in CEMS, there is no formal breakdown of who is responsible for what. *Strengthening Advising at UVM* and the strong advising work of colleagues around the country at institutions like the [University of North Carolina – Chapel Hill](#) provide useful bases for a clear demarcation of responsibilities. We cannot truly hold students, faculty or staff accountable for advising relationships without setting expectations and making them widely available.

Cross-referencing current practices with advising literature does not tell the whole story. While it provides a useful framework, the literature does not account for the unique conditions in CEMS and at UVM. Specifically, the literature is not tailored toward advising in the highly structured, technical majors offered through CEMS. The importance of student feedback in the assessment process should not be underestimated. In section V of this report, we have outlined next steps for improving advising in CEMS. Perhaps the most crucial next step is the administration of a college-wide advising survey.

V. NEXT STEPS

A) Collecting Data – April 2015

CEMS is in the process of developing an annual college-wide student survey to fill in the aforementioned gaps in the literature. The goal of the survey is to gather both numeric ratings and qualitative information on CEMS students' experiences with:

- College-wide advising services
- SoE & undeclared first year student advising program
- Unit-specific advising practices
- Individual faculty and staff advisors

We are particularly interested in gathering student feedback on the aforementioned group advising activities that are employed CEMS Student Services, CS, CEE and ME. It is important that we are able to assess whether these group sessions support our goal to provide holistic, developmental advising. We are also interested in gathering student feedback on whether they perceive any unique advising needs of a STEM student body.

B) Considering Options Informed by the Data – Summer 2015

Informed by available literature and national and institutional reports, the CEMS leadership is considering several new policies and practices to address perceived deficiencies in the current advising system. Once the data is in from the inaugural annual advising survey, the leadership will consider the following:

- Instituting a college-wide policy on the use of the Academic Alert system at all levels.
- Instituting a college-wide policy on primary advisor and/or CEMS Student Services response to Academic Alerts.
- Implementing advising holds for all CEMS students prior to fall and spring registration.
- Establishing faculty advising office hours as distinct from course office hours, particularly for programs that have moved toward group advising for course registration.
- Assigning both CEMS Student Services and faculty advisor throughout student lifecycle.

- Explore methodology for assigning rising sophomore engineering majors to faculty advisors.

C) Taking Quick Action

Given the advising literature, the analysis in section IV of this report and the key recommendations from *Strengthening Advising at UVM*, there are several action steps that CEMS can undertake without waiting for survey results. What follows is not an exhaustive account of our intentions for improving our advising program over the next year. We expect that the survey results will help us refine these initiatives.

Establish a CEMS Advisor of the Year Award – March 2015

Recognizing the importance of rewarding faculty and staff for excellent advising, CEMS will solicit nominations from its student body for its first annual CEMS Advisor of the Year Award. Students will be asked to write letters of support for the advisor they wish to nominate. This will not only allow us to recognize faculty and staff who are already excelling in this area, but it will also provide us with important feedback on the traits students value in an advisor. It will be a useful supplement to the aforementioned annual advising survey. The CEMS Dean's Office will administer the award.

Solicit feedback on 2014-2015 pilot programs – Summer 2015

CEMS is currently piloting several programs that feature advising components. Through a combination of surveys, focus groups and feedback from the CEMS Club Leadership Council, we will gather and analyze student feedback on the following programs:

- CEMS Internship Program
- CEMS Peer Mentors Program
- Ecological Engineers Program
- Peer Advising in Mathematics

Elucidating logistical information – Spring 2015

- Set and advertise “drop-in hours” for advisors in CEMS Student Services.
- In order to address confusing and misleading information regarding advising appointments/group advising sessions, all instructions regarding pre-registration advising events will be routed through CEMS Student Services in one comprehensive communication. This information will be maintained on the CEMS Student Services website.
- Explore software that would allow students to schedule advising appointments electronically.
- Publish all faculty office hours on the CEMS website.

Clarifying and communicating responsibilities – Spring & Summer 2015

- The CEMS Leadership Team will work with college faculty and staff to delineate and communicate the responsibilities of students and advisors in the advising relationship.

We will use the guidelines set forth in [Strengthening Advising at UVM](#) and UNC – Chapel Hill's [Maximizing Advising Interactions](#) model as frameworks.

- Based on newly defined student responsibilities, CEMS Student Services will develop advising handbooks for students (similar to Department of Mathematics & Statistics [handbook for majors](#)) in all CEMS programs that include information on course requirements, resources and the 4 Year Plan for Career Success.
- Based on newly defined faculty and staff responsibilities, CEMS Student Services (in cooperation with the CEMS Leadership Team) will develop advising handbooks for faculty and staff, which will include:
 - ❖ Best practices in advising as defined by professional resources, such as those published by NACADA (the professional association for academic advising).
 - ❖ Clarification of the responsibilities of faculty advisors and CEMS Student Services advisors.
 - ❖ A clear delineation of course requirements and other academic requirements that advisors should address with advisees (such as overall GPA requirements, academic standards, “D” rules, etc).
 - ❖ Opportunities available for high achieving students, such as undergraduate research, the Honors College and CEMS Honors Program, accelerated master’s programs, leadership positions in CEMS clubs and organizations, etc.