

A Focus on Academic and Career Advising: Spring 2016

Department of Biochemistry & Molecular Biology

Part One. Analysis of the Current Landscape, “A [Deeper] Look in the Mirror”

The prompts below are answered in the context of the BMB department and how it interacts with college-level and campus-level advising units.

- What are the strengths and weaknesses of the ways in which **Academic Advising** is currently performed at the Departmental level (with the student experience as the unit of analysis).
Context: The BMB curriculum for majors is highly structured in the first two years and sequenced in such a way that it is possible to complete the major in 3.5 years if students are able to get into required BMB courses, in particular, our ONLY small enrollment courses (24-48 seat lab courses and 12-25 seat Junior Yr Writing sections) within the major and in other departments (Chemistry, Physics and Biology courses with lab sections).
 - Strengths:
 - First Year advising:
 - NSO organized by CNS is excellent. Incoming students get very close attention from BMB advising staff and NSO peer advisors. The BMB major is very structured, and required courses are clearly articulated. CNS has consistently been able to accommodate all first year BMB students by opening up enough sections of the three required courses, Calculus, Gen Chem and Intro Bio.
 - Majors Advising
 - The BMB website was re-vamped in 2012 by University Relations to conform to campus formatting and provides very clear information about the major requirements and how to access advising.
 - BMB has a professional academic advisor, faculty are assigned the role of secondary advisor. With 630 majors (and growing) and only 17 faculty members (13 TT and 4 NTT) available for academic advising, we had to “professionalize” our academic advising so that our majors were able to receive timely and accurate advice on academic planning and interactions with faculty would focus on research and career planning.
 - BMB has Peer Advisors who have drop in advising hours and organize group advising sessions
 - BMB places an enrollment hold on students’ accounts with 3 ways to have them removed before the registration appointment 1) meeting with the Academic Advisor (booked through Appointments Plus), 2) Attending a Peer Advisor-led group advising session and filling out a form indicating the proposed schedule for the next semester. This is checked over by Peer Advisors and approved by the Academic Advisor 3) Downloading the ppt that is shown in Group Advising, filling out the schedule and submitting for review and approval.
 - Students wishing to switch to the BMB major can get advice on requirements from Peer Advisors and get signed into the major after meeting with the Academic Advisor.

- Weaknesses:
 - The ratio of majors to Academic Advisors is 630:1 (we include BMB secondary majors). CNS life science departments with higher levels of student satisfaction have a much smaller ratio. Within CNS, the Microbiology Department reports a high level of student satisfaction with advising (majors to Academic Advisor ratio is closer to 300:1).
 - Support staff to the Academic Advisors consists of a 50% time classified staff member who serves as the Scheduling Rep and who has high level access to CAPS, SPIRE and room scheduling software and a part time instructional support assistant.
 - BMB strives to maintain a four-year graduation rate for all of our majors, and as noted above, it is theoretically possible to complete the BMB major in 3.5 yrs. We observe many BMB majors entering with numerous AP credits, such that they are a semester ahead from the start. Our biggest challenge is enrollment stress; with a major to TT faculty ratio of 630:13 (48:1, third highest in CNS) and 80% of BMB Student Credit Hours taught by TT faculty, we are challenged in the areas of student satisfaction (all of our lecture courses are large enrollment), access to faculty, and course availability. Our junior-level lab course (BIOCHEM 526) and Jnr Yr Writing program courses (526 and 491H) have not been available to juniors for the past five-years at least.
 - Communication between CNS departments about course scheduling (and potential conflicts) is poor, as is communication with the Scheduling Office. Much of the student dissatisfaction with BMB arises from the anxiety experienced with the Registration period and not being able to get into lab sections in physics, chemistry and BMB after the second year. While first year students have been accommodated every year (resources are provided to open extra sections of biology, chemistry and math courses), resources for expanding second year and above courses have generally been less available.

- How is **Career Advising** currently performed at the School/College level, at the Departmental level (with the student experience as the unit of analysis) and what do you see as the strengths and weaknesses of your current approach? Includes **Division of Labor/Usage of Personnel**:
 - Strengths
 - BMB provides career advice in several ways; BMB faculty serve as career advisors, the BMB web page lists internship opportunities, provides advice on how to join a research group (for independent study and CHC thesis work), the BMB Integrative Experience course includes alumni career panels that are very well received by students and the department supports the Biochemistry Club (an RSO) that is also an undergraduate chapter of our primary disciplinary society (American Society for Biochemistry and Molecular Biology; ASBMB) in their efforts to provide career and research networking opportunities.
 - CNS Advising sends regular notifications to students about job and internship opportunities
 - Weaknesses
 - CNS does not have full time career advising staff
 - Career fairs with industry representatives relevant to life science majors are sporadic at best (last year was the first such event)

- Off campus internships are mostly left for students to arrange on their own — College of Engineering is a model for effectiveness with regard to establishing relationships with industry partners.
 - BMB faculty are overwhelmed by the number of BMB majors (46 majors/TT faculty), and our lecture courses have enrollments of 99-235, so close mentoring relationships are limited to research advisees (generally 4 per research group).
- Professional staff, faculty, and peers are all involved in supporting students' academic and career advising.
 - How involved and in what way is the School/College central advising office used for a) academic advising, and b) career advising. In what areas (i.e., academic advising, internship placement, career advising, student programming in these areas, employer interactions) should the central office be more engaged or is decentralization more appropriate? What is the optimal balance?
 - College-level programming with respect to internship placement and career advising is most appropriate and should be increased.
 - Does the School/College/Department have academic advising *professional* staff and if so, how are they used (what are their primary roles and responsibilities)? Is this the optimal way to draw on their talents and time?
 - CNS advising staff organize NSO (very well), pre-professional advising (also very well) and otherwise work with students who are struggling. The Dir. of Student Success and Diversity position is particularly well placed within the college and provides support to departments in developing early warning strategies (EAB only identifies struggling students after grades have been reported — working with the Dir of SS&D before the withdrawal date to identify and reach out to struggling students has been very helpful. Our connections with central advising staff are more limited. In particular, Disabilities Services is mostly an unknown entity to us.
 - Does the School/College/Department have career advising *professional* staff and if so, how are they used (what are their primary roles and responsibilities)? Similarly, is this the optimal arrangement or would you recommend alternatives for consideration?
 - See above-
 - How are faculty advisors used in terms of academic advising, career advising? Where could they be used most effectively? Where are they being used in ways that are not as optimal?
 - See above. Also, along with including undergraduates in their research programs, some BMB faculty participate in 1st yr seminars, and we are discussing ways in which BMB faculty can interact with smaller (10-20 students) groups of BMB majors, for example, hosting a lab open house, coffee and bagels with their assigned advisees, etc.
 - Does the School/College/Department use peer advisors to support academic and/or career advising? If so, please describe how peer advisors are used and what you see as the potential strengths that could be better developed?
 - BMB has Peer Advisors who hold office hours, organize the group advising prior to Registration and send out regular advising tips “Did you know....” and announcements. We plan to transition our Peer Advising program to a Peer Mentoring program in which 1 Peer Advisor is responsible for ~30 new BMB majors (mostly 1st yr, also transfers) for the first year, under the supervision of

the BMB Academic Advisor, the Chief Undergraduate Advisor or the BMB Honors Program Director.

- **Data Analytics/Tracking:** What type/level of tracking of students is happening at the School/College/Department levels (i.e., flow of students in/out of the School/College/Department, academic progress including GPA and timely progress toward degree completion, etc.)?
 - BMB strives to project enrollments for required BMB courses, yet the SPIRE database is challenging to mine for this purpose and the EAB database doesn't have the capacity to generate a master list of BMB majors detailing which courses they have taken and their grades. We currently have to submit data requests to SPIRE in a piecemeal fashion (instead of reporting out all courses/grades taken by our majors, we are limited to a few courses/grades taken by our majors per request), and the output is not useful. Data for each student is presented in multiple rows in an excel spreadsheet such that a staff person has to manually reformat the master list so that data for each student is represented in a single row. This is an egregious waste of staff time (we need to do this every semester) that we have yet to resolve despite having consulted with staff in CESD, EAB and SPIRE about alternative options.
 - BMB Advising staff regularly monitor BMB majors course enrollments and progression through the major. Prior to add/drop they confirm that graduating seniors are enrolled in the necessary courses to graduate and will notify students if they are shy of the required credits, courses etc.
 - BMB advising staff and instructors have started working with the CNS Dir. of Student Success and Diversity to identify students who are struggling in a gateway BMB course (Biochem 275) after the first quiz or exam and before the W date.
 - BMB advising staff use EAB to work with students who may need to change majors.
 - Data on student demographics (gender, first gen. to college, URM, low-income) are generally less accessible in a useful format.
- **Experiential Opportunities:**
 - **Strengths:**
 - The BMB curriculum leaves the senior yr open for independent study/thesis research and study abroad. Approximately 1/3 of BMB majors (~200) are CHC and conduct honors thesis research
 - BMB faculty include undergraduate students in their research program to the extent possible (typically about 4 students per group).
 - **Weaknesses:**
 - Because of enrollment stress, most BMB majors don't take Jnr Yr Writing and our advanced biochemistry lab course, both excellent preparation for independent study research, until their senior year
 - BMB faculty cannot sponsor the majority of our CHC students in their research programs.
- **Informational Data/Resources:** Destination of Choice, Overall Effectiveness, Student Progress - One Year Retention: **Not applicable**—we don't have our majors in BMB courses until yr 2.
 - Destination of Choice, Overall Effectiveness, Student Progress - Four and Six Year Graduation: **BMB is reaching the point where we cannot guarantee a four yr grad. We are limited by teaching lab space and instructional capacity.**

- Destination of Choice, Overall Effectiveness, Student Progress - Time to Degree: **BMB is reaching the point where we cannot guarantee a four yr grad. We are limited by teaching lab space and instructional capacity.**
- Destination of Choice, Overall Effectiveness, Student Experience (Senior Survey satisfaction –access to classes, career preparation): **Re: access to classes, we have too many majors for the number of faculty.**
- Destination of Choice, Student Engagement, Faculty Contact and Engagement (NSSE: Quality of interactions with advisors, Senior Survey: Satisfaction with academic advising in your major): **AY15-16 was the first year in which we had a professional academic advisor.**
- Information/Data on Internships/Co-Ops/Career Placement: Can be obtained from Career Services (Candice Serafino) and/or School/College own database: **With very limited staff, we do not currently have the bandwidth to focus on data collection. We maintain a departmental LinkedIn account that has about 400 BMB alums.**

Part Two. Goals for Academic and Career Advising and the Student Experience

- A. Part One’s “Look in the Mirror” was an opportunity to provide a description and evaluation of how academic and career advising is being performed, and to look at key data metrics and student feedback in these areas. Part Two is asking you to develop specific goals in these areas:
- Academic Advising
 - Career Advising
 - Division of Labor/Usage of Personnel
 - Data Analytics/Tracking
 - Experiential Opportunities

Each college should formulate specific ambitions and pathways to move toward their realization. Here are some that the deans and the campus leadership as a whole, embraces as worthy objectives:

- 1) Every first year student will know during their first semester the “routes” (where to go, who to speak with) on campus to receive academic and career advising. **BMB will address this with a new Peer Mentoring Program and continued revision to our website.**
- 2) School/Colleges are asked to identify their goal for % of students who perform an internship or career preparation practicum/experience prior to graduation, and provide plans on how to reach that goal. **BMB is pursuing ASBMB accreditation, and submitted an application in early 2016. Our application has been deferred until March 2017 because we need to provide 100 more hours of experiential learning for all of our majors. Independent study research would achieve this; however, as mentioned above, BMB faculty cannot accommodate 630 majors in their research programs. We are in the process of developing Creative Undergraduate Research Experiences (CUREs) in which all of our majors would have two semesters of authentic research experience, either as CHC members or in a revamped Biochem 526 course (currently one semester—will be expanded to two semesters). This may require that our non-majors and sophomore-level required biochemistry lab courses be moved to evening classes to leave our two 24-seat teaching labs open for CUREs. Note that we WILL reach a point at which it will not be possible to accommodate all of our majors in a CURE within 4 years. With current staff and faculty levels, 350 BMB majors would be more manageable.**
- 3) School/Colleges are asked to identify their goal for increasing student satisfaction with Senior Survey items on Academic Advising and Career preparation and guidance in their major (i.e.,

goal of increasing by XX), and provide plans on how to reach that goal. See #2 above. Enrollment management would be very helpful here.

- 4) School/Colleges are asked to identify their goal for utilization of the EAB SSC advising tool by their advising faculty and staff. The BMB Academic Advisor, support staff (two 50% time), Chief Undergraduate Advisor and Honors Program Coordinator are all trained in and using EAB SSC. (At what point will this very expensive software program undergo a cost/benefit analysis?)
 - 5) By a certain point in time (i.e., a student's junior or senior year) the student can articulate curricular and co-curricular preparation they have received to an employer. What goals does the School/College have in supporting all of our students in how to articulate their undergraduate experience and preparation to a potential employer. BMB majors are required to develop a personal statement in the BMB IE course. Anecdotal feedback from pre-professional advisors indicates that this is good preparation for medical school applications.
 - 6) What are other goals/ambitions and pathways to get there that have been identified within the School/College in the areas of academic and career advising. BMB has been trying to connect with BMB alums in the Massachusetts biotech sector via LinkedIn and regular news letters; however, we have been without a Department Manager this AY and thus have had to table these activities.
- B. What types of information/data would each School/College/Department like to be able to monitor so that we can collectively hold ourselves accountable for the work being done in academic and career advising (i.e., % of students seeing an academic advisor on a semester/yearly basis, success/failure rate of early intervention programs that may be in place, student internship placement, job placement, student satisfaction, etc.)? Please identify. See above—the ability to easily maintain an accurate, up to date master list of BMB majors grades/courses would be enormously helpful to us.

Part Three. Academic and Career Advising Action Plan

- 1) What specific actions can you take now, within existing resources, to address the aspects you have identified in need of improvement? Identify a timeline for implementation.
 - a. BMB Peer Mentoring Program will roll out Fall 2016
 - b. 100% of BMB majors will have authentic research experience (CUREs or CHC thesis work) as of the class of 2018
 - c. Support faculty (provide food) to offer lab open houses, smaller meet and greet opportunities
 - d. Institute an annual BMB undergraduate poster session (we have done this somewhat sporadically over the past several years, and will add this expectation of students as we roll out the CURE program.
- 2) If there is a specific action or need(s) identified that can only be addressed with additional resources? Describe what you would like to do and what resources would be needed.
 - a. Full time advising support staff instead of two part time staff, an additional academic advisor for BMB so that we can focus on developing internship pipelines with industry and career development
 - b. Additional instructional support so that non-major and sophomore level BMB lab courses can be offered evenings and Saturdays.
 - c. More tenure system faculty would lower the major:faculty ratio, provide more research/career mentorship