California State University
SAN MARCOS
College of Science & Mathematics

California State University San Marcos 333 S. Twin Oaks Valley Road San Marcos, CA 92096-0001

Tel: 760.750.8274 jjameson@csusm.edu www.csusm.edu/csm

April 6, 2017

To: UCC Chair
From: Julie Jameson
Subject: Dual-listing BIOL 456 and 656

Biology is interested in dual-listing courses to address a specific shortcoming in our MS program. Enrollment of graduate students in graduate elective courses is often too small to offer graduate-only electives. Our past solution to this problem has been either to offer graduate electives at the 500-level (because undergraduates can take them and boost enrollment), or to have our graduate students take 400-level undergraduate courses and then petition to use them for their MS degree. Our MS students end up with very few electives on their transcripts that are 600-level. Regardless of how we actually teach these classes, the difference in course numbering between 500 and 600-level gives the impression to others that our students are not taking challenging coursework. This serves our MS students poorly. We wish to offer our MS students as many 600-level courses as possible, but pairing 400-level with 500-level courses does not increase the number of 600-level classes we offer.

We currently have a few 400-level and 600-level class pairings in Biology (Biol 420/620 and Biol 463/663). While these courses mix undergraduates and graduates together in lectures, this is the only portion of the course that cannot be differentiated between them, and this will be replicated for Biol 456/656. We will ask graduate students to do additional readings from the primary scientific literature, and to demonstrate a higher level of understanding and synthesis of course material in every other aspect of the class (such as exams, case study challenges, assessments, and presentations). For example, the take home midterm exam will include more challenging concepts that require an in-depth analysis of primary research articles and the application of more advanced scientific concepts. Graduate students will have additional readings from the primary scientific literature. Upon reading these manuscripts they will be required to provide critical reviews of the findings. Together, the graduate students in the class will discuss these reviews and the findings with each other. Graduate students have additional requirements beyond those of the 486 undergraduates in lecture. For example, graduate students will be preparing a resume for the biotechnology field, investigating companies with products related to molecular medicine, co-teaching one class and designing a case study for the undergraduate students (worth 40 points). Written/oral feedback will be provided by the undergraduate students and instructor to assess oral communication skills. The final exam will be in an essay format and require

in depth research, unlike the more traditional multiple choice, short answer exam administered to undergraduates.

Having both student groups in the same lecture is not a problem, since the subject will be new to both groups of students, and both groups will need to learn the basic information in the field that is presented in class. In other words, students will all be expected to have some background knowledge of biology, but not molecular medicine in particular. Since our 400-level course has 300-level prerequisites (BIOL 351 or BIOL 352 or BIOL 353 or BIOT 355 or BIOT 356 or BIOL 477), both groups should be able to handle the lecture material. Since the course is taught using team-based learning, graduate students will be placed together in one team to support more advanced discussions.

In short, the 400/600 pairing allows us to increase the number and rigor of our graduate courses while simultaneously maintaining the enrollment levels needed to offer the courses at all. This pairing should benefit both undergraduate and graduate students by increasing the diversity of electives available to both groups, at a level appropriate to their degree program.