June 21, 2010

Henry Powell
Chair, Academic Council

In Re: UCLA Response to Proposal to Expand the Area “D” Admission Requirement

Dear Harry,

Thank you for the opportunity to review and opine upon the Proposal to Expand the Area “D” Laboratory Science Admission Requirement to Include Earth, Environmental, and Space Sciences (EESS). Upon receipt of the proposal, I requested review by the Undergraduate Council (UgC), the Committee on Undergraduate Admissions & Relations with Schools (CUARS), and the College FEC. All other committees were welcome to opine. I am attaching the responses received, for your information.

The UCLA Senate very much appreciates the value of educating California high school students in EESS fields. The Senate Executive Board, which speaks for the UCLA Senate on such matters, views these areas of study as beneficial to students who reside in a state constantly encountering environmental challenges, many of which could be covered in EESS courses. Although the Executive Board supports many fundamental parts of the proposal, we do not believe that the proposed expansion of the Area “D” requirement to include EESS courses represents the UC’s best option in improving science education.

The Executive Board agrees with the argument that the education offered to the future state leaders should include EESS topics. Yet the Board, like UCLA’s Undergraduate Council, was not convinced that this education should necessarily occur at the high school level, especially not in lieu of any foundational subjects such as biology, chemistry, or physics, as are currently part of Area D. If the UC truly believes that EESS topics are essential to one’s becoming a scientifically educated member of the community, then these types of EESS courses should become part of a general education requirement on the UC campuses, if they are not already such. The duty should not fall upon California high schools, which may or may not have the resources to implement such topics of study, to provide EESS offerings. It was noted by several members that while it may be seen as a bonus to offer such courses beginning in high school, the reality is that many U.S. students are not exposed to a wide array of disciplines until their college years, and many U.S. high schools cannot afford to offer such a wide array of fields.

Beyond the additional costs associated with offering EESS courses in high schools, concerns were expressed among the Board members regarding the practical implementation of such a requirement in California high schools. Maintaining the rigor and quality of these courses, as would be necessary if they were to qualify under an Area “D” admissions subject, would require that teachers knowledgeable in these areas of study be hired by the high schools. Given the financial realities of the California public
education system as well as the relative dearth of secondary school educators with appropriate backgrounds in environmental science, geology, space sciences, and related areas, the Board feels that it would be unfair to impose this type of requirement on the high schools. The Board commends the secondary schools that currently have the resources to offer EESS courses under Area “D” by petition, and encourages these schools to continue to do so.

Again, thank you for the opportunity to review and opine upon this important proposal. Please do not hesitate to contact me should you have any questions.

Sincerely,

Robin L. Garrell
Chair, UCLA Academic Senate

Cc: Martha Kendall Winnacker, Executive Director, Systemwide Senate
    Jaime R. Balboa, CAO, UCLA Academic Senate
June 4, 2010

Robin Garrell
Chair, Academic Senate

**RE: Area “D” Admissions Requirement**

Dear Robin:

The Undergraduate Council reviewed the Area “D” Admissions Requirement at its meeting on May 14, 2010 and members were asked to return the spreadsheet that you provided to indicate agreement, conditional agreement, disagreement, or no comment on each of the recommendations.

Professor Darnell Hunt, CUARS Chair and UgC ex-officio member, briefed the Council on the proposal and the pros and the cons that the revisions presents. The proposal expands the Area “D” laboratory science admission requirement to include Earth, Environmental, and Space Sciences.

Proponents of the ESS proposal argued that:

1. Earth and space science (ESS) should be treated by UC in a co-equal fashion with biology, chemistry, and physics as a laboratory science because a command of ESS knowledge is an important element of scientific literacy, particularly in a seismically active state like California.
2. ESS is a distinctive field and a highly engaging one that would stimulate high school students’ interest in scientific fields of study.
3. The current UC “D” eligibility requirement (a) is not consistent with the National Academic of Sciences K-12 science education standards for achieving the goal of science literacy; (b) does not provide enough encouragement or incentive to high schools to offer earth and space science courses; and (c) ignores a possible doorway to expanding interest in science.
4. A number of highly respected figures in the scientific community, including the current president of the National Academy of Sciences, support his position and argue UC’s current science requirements do not promote a strong science preparation in the high schools.
5. An integrative science such as ESS could be an important conduit to scientific fields of study at the University, especially for women and racial/ethnic minorities.
6. The “special status” enjoyed by biology, chemistry, and physics is archaic, and is the result of historical accident.

BOARS and UCEP were unanimous in expressing value for more ESS and other “integrated science” curricula in the high schools; however, both committees recommended that no change be made to the current “D” eligibility requirement.

BOARS and UCEP argued as follows:

1. The central purpose of eligibility requirements is to ensure minimum preparedness for academic success at the University. It is abundantly clear that the prevailing curricular philosophy at UC...
holds that biology, chemistry, and physics, as appropriate, are foundational subjects for further study in any science-related field. Baccalaureate degree programs in science and science-related majors at UC overwhelmingly include introductory sequences of courses in biology, chemistry, and physics as part of their lower-division requirements. The same is not true for ESS courses. It would be unwise to change the “D” requirement in any manner that would result in lower levels of preparation in biology, chemistry, and physics among entering freshmen.

2. A change in policy is not needed because it is already possible for ESS and other integrative science courses to be approved as fulfilling the “D” requirement, if such courses are properly designed.

3. There is no agreement among UC faculty that ESS is “co-equal” with biology, chemistry, and physics. There is agreement that ESS courses that would not be approved under the current “D” requirement are NOT “co-equal” with UC-approved biology, chemistry, and physics courses.

It was noted that this proposal was discussed at the College FEC and the argument was presented there that not all high school students are preparing to pursue science at the college level, or professionally; therefore, this additional option would be beneficial to these students.

Also, some members also felt that adding ESS as a “D” requirement would provide an incentive for the high schools to develop stronger courses in these areas; there is currently no incentive, as the classes do not count. This argument was countered, however, by stating that the resources used to strengthen these courses would likely be pulled from other foundational science courses; thus weakening the other programs.

The Council believed that accepting ESS as a third science was acceptable; however, it should not fill one of the two science requirements. The Council was also supportive of developing an AP Course which would allow for college credit in ESS.

The motion to endorse UC Davis’ proposal to expand the Area “D” laboratory science admission requirement to include Earth, Environmental, and Space Sciences was seconded. The faculty voted 1 in favor, 13 against, 0 abstentions; student vote: 0 in favor, 2 against, 0 opposed.

Sincerely,

Joseph B. Watson, Ph.D.
Chair, Undergraduate Council

cc: Michael Goldstein, Immediate Past Chair, Academic Senate
Ann Karagozian, Vice Chair, Academic Senate
Jaime Balboa, Chief Administrative Officer, Academic Senate
Linda Mohr, Assistant Chief Administrative Officer, Academic Senate
Judith Lacertosa, Principal Policy Analyst, Undergraduate Council
Dorothy Ayer, Assistant to Senate Leadership & CAO
June 4, 2010

To: Robin L. Garrell  
Chair, UCLA Academic Senate

From: Darnell Hunt  
Chair, UCLA Committee on Undergraduate Admissions & Relations with Schools

Re: Senate Item for Review: Area “D” Admissions Requirement

I am writing to report that at its meeting on May 21, 2010, the Committee on Undergraduate Admissions & Relations with Schools (CUARS) thoughtfully considered the proposed expansion of the Area “D” Admissions Requirement, to include Earth, Environmental, and Space Sciences. The committee voted to endorse the proposal, contingent upon the revisions below with 4 in favor, 1 opposed, and 0 abstentions. The student vote was 1 in favor, 0 opposed, and 0 abstentions.

CUARS feels strongly that courses in biology, chemistry, and physics should not be displaced by earth, environmental, and space sciences (EESS) courses, as the former, more foundational courses are necessary for proper college preparation. While CUARS agrees that not all students will enter science disciplines in college, or as a career path, the committee affirms the belief that no student should be admitted to a UC campus unprepared to pursue any degree program offered on that campus; that is, incoming students should be prepared in the event they discover areas of study they were originally not planning to pursue. The committee feels strongly that incoming students should not be “tracked” into non-science-oriented majors due to an expanded Area “D” requirement that has the potential to decrease the number of the more foundational science courses students take.

Nonetheless, the committee was persuaded by the proposal’s argument that EESS courses would appeal to students who otherwise may be disinterested in science, particularly those from disadvantaged backgrounds. The committee also was impressed by the proposal’s argument that students who take EESS courses may become more interested in science because of the courses’ high degree of relevance to students’ lives, thereby encouraging students to take additional science courses. Finally, the committee recognizes the potential positive effect that expanding the requirement could have as an incentive for high schools to improve the courses they currently offer in earth, environment, and space sciences. It is for these reasons that the committee ultimately supports the idea of expanding the Area “D” requirement to include EESS courses, but only under the conditions outlined below.

Currently the proposed revision to the UC Area “D” requirement stipulates: ... “two and preferably three courses (from at least two areas), of the following sciences: 1) biology, 2) chemistry, 3) physics, and 4) earth, environmental, and space sciences.” CUARS feels that the number of required courses should be raised to three -- a compromise that addresses the committee’s goal of not lowering the required number of foundational science courses and encouraging otherwise reluctant students to become more engaged with science. CUARS’ suggested revision would therefore state: ... “three and preferably four
courses (from at least three areas) of the following sciences: 1) biology, 2) chemistry, 3) physics, and 4) earth, environmental, and space sciences.” However, the implementation of this new requirement should be contingent upon schools offering sufficient access to three of these four courses. CUARS is sensitive to the possibility that such an expansion could have an unintended, negative impact on disadvantaged and underrepresented students who attend under-resourced high schools. Every precaution should be taken to ensure that does not happen, which may warrant additional research before expansion of the area is implemented.

CUARS would also like reassurances that all EESS courses accepted for the Area “D” requirement are subject to the same review process as the biology, chemistry, and physics courses currently within the area. Maintaining quality of courses is essential, as there appears to be considerable variation in the scope and rigor of EESS courses currently offered in the state. Finally, the committee acknowledged that it was unlikely under-resourced schools would be able to react as quickly as others to any expansion of the area, and that this reality should be taken into account in any schedule for implementing the new requirement.

If you have any questions or need additional information, please feel free to contact me (x64304; dhunt@soc.ucla.edu), or Dottie Ayer (x62070; dayer@senate.ucla.edu).

cc: Jaime Balboa, Academic Senate CAO
    Linda Mohr, Academic Senate Assistant CAO
    Judith Lacertosa, CUARS Analyst
    Dottie Ayer, Academic Senate
May 20, 2010

To: Robin Garrell, Chair  
UCLA Academic Senate

From: Ray Knapp, Chair  
UCLA College Faculty Executive Committee

Re: College FEC response to “Systemwide Review of Proposal to Expand the Area (d) Laboratory Science Admission Requirement to Include Earth, Environmental, and Space Sciences: BOARS Recommendation for Materials to Include in Packet of Information Sent to Campuses”

The College Faculty Executive Committee (FEC) reviewed the above proposal at its May 14, 2010 meeting. After careful review, discussion, and consultation with Ray Ingersoll from the Department of Earth and Space Sciences and other science faculty on the FEC, the FEC has unanimously endorsed UC Davis’ proposal to expand the Area “d” laboratory science admissions requirement to include Earth, Environmental, and Space Sciences.

Proponents of the proposal have convincingly argued that inclusion of EESS courses under Area “d” will promote science literacy, engage and stimulate high school students’ interest in the sciences, and incentivize high schools to offer rigorous EESS courses. When designed appropriately, EESS courses can provide sufficient foundational support for further study in any science-related field. This also seems a timely initiative, given the growing emphasis on the environment and sustainability.

The FEC believed that several of BOARS’ concerns could be addressed by adding language to the a-g literature advising aspiring science majors to take biology, chemistry, and physics courses as preparation for an undergraduate program in the sciences. BOARS’ remaining concerns about the rigor of EESS courses could be addressed by clearly articulating and delineating expectations for EESS courses, much in the same way they do now for current high school sciences courses.

The College FEC appreciates the consultative process and opportunity to provide feedback on this proposal. You are welcome to contact me at (310) 206-2278 or knapp@humnet.ucla.edu with questions. Kyle Stewart McJunkin, Interim FEC Coordinator, is also available to assist you and he can be reached at (310) 825-3223 or kmcjunkin@college.ucla.edu.

cc: Lucy Blackmar  
Penny Hein-Unruh  
Judith Lacertosa  
Linda Mohr  
Joseph Watson