To: Academic Senate

From: Emily Stoper, Chair, Committee on Instruction and Curriculum (CIC)

Subject: Upper Division General Education Learning Outcomes in Science

Purpose: For Action by the Academic Senate

Action Requested: Approval of the following Learning Outcomes for Upper Division General Education Science (B6)

Upper Division General Education Science (B6) Student Learning Outcomes

Upper division physical, life, or interdisciplinary science GE courses build upon scientific principles and quantitative skills gained in lower division science and quantitative reasoning courses. Students must complete their lower division B1-5 requirements prior to taking their B6 course. Students are strongly encouraged to take any lab associated with the upper division course.

Upon completion of the upper division science course, students will be able to

1. demonstrate advanced* and/or focused science content knowledge in a specific scientific field using appropriate vocabulary and referencing appropriate concepts (such as models, uncertainties, hypotheses, theories, and technologies);

2. apply advanced* quantitative skills (such as statistics, algebraic solutions, interpretation of graphical data) to scientific problems;

3. demonstrate understanding of the nature of science and scientific inquiry and the experimental and empirical methodologies utilized in science to investigate a scientific question or issue;

4. critically analyze scientific claims and data;

5. apply science content knowledge to contemporary scientific issues (e.g., global warming) and technologies (e.g., cloning), where appropriate.

Background Information:
In 2002-03, as part of its overhaul of the General Education package, the Senate approved a proposal for a new requirement all students must take 4 units of Upper Division General Education in Science, including numeracy, quantitative analysis, information literacy, and critical thinking skills. These learning outcomes for courses meeting that requirement were developed by a special committee assembled for that purpose. They were approved by CIC’s G.E. Subcommittee and unanimously by CIC at its meeting of Feb. 21, 2005.