5. **Course Description**: The goal of this course is to instruct students in cutting edge methodologies that relate to both biochemistry and molecular biology. The class will be divided into 45 1-hour lectures that will be held on Monday, Wednesday, and Friday. There will be three midterm examinations and no comprehensive final exam. Homework will be assigned at the discretion of the individual instructors, but will not be extensive. Grading will be letter-based and will be determined based upon student scores of the three midterm exams and homework assignments. Individual lecturers are chosen from multiple GSBS Graduate Programs and are assigned lectures based upon expertise in the relevant techniques. Lectures will be designed to provide a sound foundation in principles of the methodology, when it is used, and what are its limitations. Enrollment in this course will provide a student with exposure to a vast repertoire of techniques ranging from qRT-PCR to metabolomic profiling to basic recombinant protein expression and analysis. This course is designed to act synergistically with the techniques covered in the Core Course.

6. **Course Justification**. This course represents a merger of two long-running courses (Current Methods I & II). These courses had consistently high enrollments, and were well-received by students, but a reorganization was necessary due to the impact of the new GSBS Core Course. The previous Current Methods courses were each two credit-hours and focused broadly on molecular techniques (CMI) and protein-based techniques (CMII). The BMB program curriculum committee felt that simply merging CMI and CMII to create a four-credit hour course was unnecessary, and we instead reduced the hours to three by removing outdated lectures and those redundant with the Core Course. Our faculty will monitor the latter point as the Core Course proceeds through its inaugural offering. The new course integrates the lectures from the previous two courses to create a three-part lecture series (each demarcated with a midterm exam) that focus on: (1) in vitro tool development and experimental design; (2) experimental execution and synthesis; (3) analysis and interpretation tools. Our target audience will be first-year students who are joining the BMB Program as well as interested students from other programs. We feel that either the Core Course or two semesters of undergraduate biochemistry is a pre-requisite but it will be encouraged.

7. **Course Objectives**

   A) Learn basic techniques germane to nucleic acids
   B) Understand the strengths and limitations of various model systems
   C) Learn basic techniques germane to protein manipulation
   D) Gain an understanding of analysis techniques ranging from NMR to bioinformatics.