Memorandum of Understanding  
External Program Review  
Department of Mathematics  
College of Arts and Sciences  
April 2013

Members of the Mathematics Department faculty, the Dean and Associate Dean of the College of Arts and Sciences, the Natural Sciences Division Chair, and the Vice Chancellor for Academic Affairs met on April 16, 2013 to review and discuss the Department’s program review by Dr. Hongde Hu, Chair of the Mathematics Department at California State University – Monterey Bay. The group agreed upon the summary points and action plan that follow:

Summary Facts:

1) The Mathematics Department consists of seven tenure-track faculty members (Mitchell Anderson, Ramón Figueroa-Centeno, Raina Ivanova, Shuguang Li, Roberto Pelayo, Efren Ruiz, and Brian Wissman) and four instructors (Erica Bernstein, Zorana Lazarevic, Zinat Rahman, and Aaron Tresham).

2) The Math Department averages (Fall 2009 – Fall 2012) 39 majors per year; 8 graduates per year; and 2,907 SSH per year. This compares to the NS Division averages of 83 majors, 14 graduates, and 1,310 SSH/year.

3) The Math Department has an FTE Student/FTE Faculty ratio of 18:1, and an SSH/FTE Faculty of 272, which is close to the NS Division average of 18:1 and 277 respectively.

4) The Math Department offers a B.A. degree.

5) The Math Department has a strong major curriculum that produces outstanding students, some of whom receive prestigious fellowships to attend graduate school in top universities around the nation.

6) The Math Department carries a heavy service load serving students and majors across the entire university. The external reviewer notes that the Math service courses (e.g., Pre-Calculus course and calculus sequence) have been thoughtfully developed and are all up-to-date.

7) The Math Department does a good job of reaching out to the larger community, primarily by supporting the Big Island Math League, and transitioning Hawaii DOE High School Mathematics to the new Common Core Standards.

External Reviewer’s Recommendations:

1) Redesign Math 103. The goal of the redesign should be to better prepare students for college-level mathematics, particularly those who are headed to quantitative disciplines like computing science, business, and natural sciences. The following issues should be addressed in the redesign: rigor of the curriculum – students must have the opportunity to be well prepared for success in pre-calculus and beyond, preparation of faculty – instructors must have sufficient expertise in both the content and pedagogy of the developmental program, and assessment of student achievement.

2) Math Center Coordinator. The Math Center Coordinator, currently under the auspices of the Kilohana Student Success Center, should have a dual appointment in the Math Center and the Mathematics Department in order to increase the communication and cooperation between the Mathematics Department and the Math Center. Under the general supervision of the Mathematics Department Chair, the Coordinator should act as the central resource where students, instructors, staff, and other interested parties may access information regarding the Developmental Mathematics Program at the UHH.
3) **Math Placement.** The Math Department, and UHH, should reconsider its current method of placing students in Math courses. One very successful math placement exam is the ENTRY LEVEL MATHEMATICS (ELM) Examination. The ELM exam is designed to assess and measure the level of mathematics coursework (Algebra I and II, and Geometry) of students entering the university. UHH might consider coupling this exam with face-to-face advising during orientation week to ensure that students are placed in the proper level of mathematics classes.

4) **Applied Math/Statistics Concentration.** With the high need for statistics courses that serve other students and majors at the UHH, the Math Department should engage in dialogue regarding the long-term plans for developing the statistical education concentration or track. An Applied Math/Statistics concentration could prepare Math graduates to directly enter the workforce in high-paying careers. A related recommendation is for the department to hire a Ph.D. statistician in its next hire.

**Math Department Action Plan:**

1) The Math Department will engage in a comprehensive redesign of its MATH 103 course in accordance with the recommendation of the external reviewer. Newly hired instructor, Zinat Rahman, under the supervision and guidance of the department, is charged with implementing this redesign.

2) The Chair of the Math Department will continue to serve as a liaison between the department and Kilohana Student Success Center. With the VCAA’s approval, Ms. Zinat Rahman, under the supervision of the Department Chair, will serve as Math Tutor Coordinator in the Math Center. She will have one course release (or equivalent) to perform her duties as academic advisor and coordinator for the Math tutors.

3) With the goal of ensuring proper placement for students, the Math department will collaborate with the VCAA to optimize the placement process into all introductory math courses.

4) The Math department welcomes the idea of expanding its program by developing a statistics and or applied Math concentration. This is understood to be a large undertaking and we will work with the VCAA to identify the process.

5) The Math Department serves the entire university and requires an upgrade of its teaching classroom in College Hall, room 6. A new teaching station is required that contains a projector, ELMO, computer station, and internet access. In addition, the chalk boards in its Kanakaole Building classroom need to be replaced with large white boards. The Dean of CAS will consult with Dr. Robert Chi about upgrading the teaching station in CH-6 and the blackboards in K-Building.

6) The department anticipates the need to upgrade to a new Calculus 1-2 computational platform, which may include new software and hardware. The department needs a priority scheduling commitment for the suitable electronic classrooms for our Math 121 (Intro to Statistics and Probability) courses. Math 121 is a GE requirement with high enrollment.

7) The Math Department expresses our appreciation for the External Reviewer’s helpful recommendations and for the Dean’s and VCAA’s continuing support in implementing them.
Departmental Approvals:

Raina Ivanova, Chair

Mitchell Anderson

Ramón Figueroa-Centeno

Shuguang Li

Roberto Pelayo

Efren Ruiz

Brian Wissman

Administration Approvals:

Ernest Kho, Natural Sciences Division Chair

Randy Hirokawa, CAS Dean

Matthew Platz, VCAA