

Mathematics and Statistics Department Strategic Plan

Approved April 2008

Strategic Directive 1: Invest in People

Goal 1.1 Strengthen the University's commitment to providing a high quality academic environment that attracts, challenges, retains, and graduates outstanding student scholars at the Undergraduate and Graduate levels.

- 1. Instill in all students a broad based understanding of global, social, and economic issues.**
 - a. Address these issues as appropriate in Core mathematics and statistics courses.
 - b. Continue to include material addressing these issues in the curriculum for future teachers.
 - c. Develop a shared portfolio of applications addressing these issues.

- 2. Inspire in all students a strong sense of values, ethics, and civic engagement.**
 - a. Explore service opportunities for our majors, such as tutoring in local high schools.
 - b. Continue to include material addressing these issues in the curriculum for future teachers.
 - c. Continue to develop leadership in our majors by supporting the Math Club.

- 3. Continue to review, develop, and manage a dynamic, responsive, and vibrant portfolio of undergraduate, graduate, first professional, and applied doctoral programs that will attract and retain outstanding student scholars from diverse backgrounds and geographic locations.**
 - a. Continue to offer a Mathematics major intended to prepare students variously for graduate study or careers involving mathematics and/or statistics in teaching, government, business, or industry.
 - b. Review our concentrations and explore options to improve our program.
 - i. Consider opportunities to strengthen our program provided by the upcoming reduction in General Education hours, especially the possibility of increasing in-field requirements.
 - c. Develop, in collaboration with the CEHD, and offer a Master's of Science in Education with a concentration in Mathematics.
 - d. Offer a dual degree (3+2) program with Virginia Tech.
 - i. recruit students into this program
 - e. Explore the possibility of creating a K-8 Mathematics Specialists Master's Program, in collaboration with the Virginia Mathematics and Science Coalition.
 - f. Hire faculty to support approved programs.

- 4. Develop strategies to support culturally responsive curricular and co-curricular advising with particular attention to the needs of students that are first generation, nontraditional, from underrepresented populations, etc.**
 - a. Develop a survey for new majors that will enable us to get to know them better.
 - b. Explore the possibility of appointing a departmental advising coordinator.
 - c. Collaborate with New Student Programs to consider a residential learning community and common Univ 100 course for new freshmen and transfer students, particularly students from underrepresented populations.
 - d. Explore the possibility of providing increased advising support to first generation, nontraditional, and underrepresented populations.

- 5. Increase, through aggressive fundraising efforts, the resources available for both need- and merit-based financial aid to attract and retain outstanding student scholars from traditional and underrepresented populations.**
 - a. Achieve 50% faculty participation in departmental scholarship funding.
 - b. Seek external funding for scholarships, especially for members of underrepresented groups.
 - c. Collaborate with community organizations to seek funding to support students attending the Summer Bridge program.

- 6. Increase the use of direct value-added assessment by comparing students' skills, knowledge, and abilities upon entering RU and again during the senior year to measure learning gains that may be attributable to the institution's academic and student services programs.**
 - a. Explore the possibility of developing a departmental capstone course.

- 7. Increase the use of post-graduation assessment to determine (i) the extent to which alumni believe their RU education prepared them for their chosen careers or advanced academic study and (ii) the extent to which employers believe RU graduates have the necessary skills, knowledge, and abilities for the job.**
 - a. Develop and pilot a survey of our alumni.
 - b. Develop and pilot a survey of employers of our graduates.

- 8. Place an increased emphasis on assessing entering students' knowledge, skills, and abilities, and prescribing an appropriate initial curriculum that will better ensure success in degree programs.**
 - a. Improve placement of students by using placement tests for courses with low success rates, particularly calculus.

- 9. Place an increased emphasis on assessment findings to support program and curriculum review, modification, and/or development.**
 - a. Explore the possibility of developing and offering an intensive review course for majors planning to take standardized tests in mathematics and/or statistics.
 - b. Consider using common final exams in Core courses.

10. **Enhance success-focused student advising, career guidance, and faculty-student mentoring.**
 - a. Develop an online undergraduate majors' handbook, to provide a central source of information for our majors.
 - b. Continue to encourage faculty to support the Math Club and participate in its planned activities.
 - c. Host career panels focused on answering the question, "What can I do with a major or minor in mathematics?"

11. **Improve graduation rates, retention rates, and the number of graduates per FTE faculty member to a competitive level with other Virginia public institutions.**
 - a. Continue to encourage the university to raise admission standards.
 - b. Continue to place primary emphasis on excellence in teaching.
 - c. Improve placement of students by using placement tests for courses with low success rates, particularly calculus.
 - d. Continue to coordinate advising closely with our College advising office.
 - e. Pursue internal funding to re-implement the Peer Instructor program within the department.
 - f. Pursue external funding to allow closer tracking of student progress.
 - g.

12. **Shift the balance in student population to a smaller, highly qualified undergraduate student body, while increasing the students enrolled in dynamic post-baccalaureate portfolio of masters, first professional, and applied doctoral programs in such areas as Counseling Psychology, Pharmacy, Optometry, Occupational Therapy, and Physical Therapy.**
 - a. Offer an Master's of Science in Education, as noted above.
 - b. Explore the creation of a K-8 Mathematics Specialists Program, as noted above.

13. **Partnering with community colleges in the Commonwealth to develop additional articulation agreements that provide for a seamless student transition to RU and that maximize the number of students entering RU with degrees from the Virginia Community College System.**
 - a. Develop articulation agreements with community colleges in southwestern Virginia.

Goal 1.2 Create a stimulating educational climate, enabling the institution to attract and retain a distinguished and diverse faculty, administration, and support staff dedicated to excellence.

- a. Continue to encourage the participation of tenured and tenure-track faculty in the internal governance of the university.
- b. Continue to encourage scholarly collaborations and new grant-writing possibilities across the College of Science and Technology, with the School of Teacher Education and Leadership, and with faculty at other universities.
- c. Create a one-credit graduate seminar on research in mathematics education.

- 1) **Increase expectations and support for faculty to work as partners with students in the learning process.**
 - a. Provide reassigned time and other support for faculty to offer independent study courses, supervise internships, include undergraduates in research, and engage in other activities conducive to close interaction with students.

- 2) **Retain the University's most successful faculty by creating an environment where workload is aligned with abilities and performance; by increasing named professorships and endowed chairs; by maximizing use of eminent scholars funding; and by funding strategically aligned institutes and research centers.**
 - a. Continue to reassign time for faculty to accomplish their professional goals and pursue activities beneficial to the department and university.
 - b. Explore the feasibility of establishing a Center for Mathematics Education in the Public Interest.
 - c. Support College of Science and Technology efforts to establish interdisciplinary centers.

- 3) **Support faculty productivity and efficiency by enhancing instructional support services and ensuring a proper and pedagogically sound student-to-faculty ratio.**
 - a. Continue to request that the LARC be allowed to hire a sufficient number of full-time, fully trained, Master's-level mathematics and statistics tutors to support our courses.

- 4) **Establish expectations and standards of excellence in teaching, scholarship, and service, and use these standards when evaluating faculty for promotion, tenure, and merit-based salary increases.**
 - a. Continue to use our department-crafted plan to evaluate teaching, and continue to rely on the good judgment of our Chair and Personnel Committee to evaluate scholarship and service.
 - i. Review our teaching evaluation procedure annually.

- 5) **Provide mentoring, remediation, or corrective action for faculty and staff who are not performing at an acceptable level.**
 - a. Assign mentors to new faculty.
 - b. Continue to follow the university's established policy for post-tenure review.

- 6) **Create a campus environment where diversity of thought and personal background are highly respected and where the campus culture values and models inclusiveness in all that we do.**
 - a. Continue to hire the best faculty we can following the university's established hiring guidelines.

- 7) Establish collaborative relationships with public and private partners to develop educational programs and activities promoting awareness of increasingly diverse populations in the region, the Commonwealth, the nation, and the world.**
 - a. Establish and continue relationships with community-based organizations serving diverse communities.

- 8) Develop and sustain a curriculum in which RU students demonstrate an awareness of and appreciation for cultural differences and an understanding of relationships among peoples and nations.**
 - a. Develop a pool of culturally relevant examples from which all department faculty can draw.
 - b. Continue to build consideration of diversity and equity issues into the Mathematics Education curriculum.

- 9) Implement recruitment strategies, including training and support for search committees, so that RU will be well-positioned to hire and retain faculty, staff and administrators from underrepresented populations.**
 - a. Continue to provide search committees with information and other resources necessary to recruit faculty from underrepresented populations.
 - b. Encourage faculty engagement with local school districts, including the Governor’s School.

Strategic Directive 2: Invest in Programs

Goal 2.1 Ensure that undergraduate academic programs are rigorous and distinctive.

- 1) Revise, streamline, and bring into alignment our core curriculum (General Education) with processes and programs at institutions nationally recognized for academic excellence and broad-based student preparation that cultivates intellectual agility and fosters ethical and social responsibility.**
 - a. Offer Mathematics and Statistics Core Curriculum courses to satisfy the requirements of SCHEV, SACS, the university, our colleagues, our consciences, and the needs of our students.

- 2) Enhance and expand RU’s academic program review process to assess the quality of our academic degree programs; to identify mechanisms to improve the quality of education, research, and service; and to enable degree programs to better align their goals and plans with those of the individual colleges and University.**
 - a. Develop a plan and process for ongoing collection of data for program improvement.
 - b. Use any data collected to inform decision-making.

- 3) Expand RU's academic and discipline-specific program review process to include a thorough and rigorous review of academic programs and programs that support academics (e.g., Financial Aid, Registrar, Admissions, Academic and Career Advising) both within and outside Academic Affairs to ensure continuous improvement and quality assurance in all areas.**
 - a. Invite Mathematics Supervisors from local schools to participate in review of the Mathematics Education concentration.
 - b. Invite members of the School of Teacher Education and Leadership to participate in the academic program review process for the Mathematics Education concentration.

- 4) Continue to enhance and transform the Honors Academy by attracting additional highly qualified students and by providing increased opportunities for participation by more of the University's best and brightest students.**
 - a. Continue to offer a Mathematics course especially for Honors students.
 - b. Explore, with the director of the Honors Academy, the possibility of developing and offering a second such course.
 - c. Encourage students to join the Honors Academy and participate in its living/learning experience.
 - d. Work with the Honors Academy director to recruit honors students into mathematics.
 - e. Consider offering special sections of Calc I and II classes for majors and Honors students.

- 5) Increase the number of Bachelor of Arts degrees that require rigorous language requirements in appropriate disciplines.**
 - a. Encourage students to consider the B.A. option.
 - i. Increase advisor awareness of the advantages of learning a second language.
 - ii. Investigate the possibility of cooperation with the Kirk Scholars program.

- 6) Identify strategies and provide support for initiatives to expand learning opportunities offering exposure to global perspectives and appreciation for cultural differences.**
 - a. Actively investigate a study-abroad opportunity.
 - i. Investigate funding for student travel related to study abroad.
 - ii. Explore establishing a collaborative study-abroad program with other departments.

- 7) Develop additional programs to encourage faculty and student collaboration in service learning and experiential education activities.**
 - a. Encourage internships in non-teaching concentrations.
 - b. Provide service learning opportunities for future teachers.

Goal 2.2 Ensure that graduate programs are rigorous and distinctive.

- 1) Pursue the establishment of new advanced degree programs, including first professional or applied doctoral programs in such areas as Occupational Therapy, Physical Therapy, Pharmacy, and Optometry.**
 - a. Offer the Master's of Science in Education mentioned above.
 - i. Ensure that all mathematics and statistics courses in the program use appropriate technology.
 - b. Consider offering a K-8 Mathematics Specialists Master's Program, as mentioned above.
- 2) Set appropriate faculty workloads for graduate teaching, research, and related activities.**
 - a. Provide a one-course release for every faculty member who is teaching at least one graduate course.
 - b. Provide reassigned time for faculty with documented, continuous research production.
 - c. Minimize the number of preparations for all tenured/tenure-track faculty.

Goal 2.3 Promote co-curricular services to enhance student experiences before and after graduation.

- 1) Expand living/learning programs that are congruent with academic excellence and community stewardship.**
 - a. Explore the possibility of our majors participating in ITEC's existing living/learning community.
- 2) Maximize opportunities for graduates to find employment in their chosen field by increasing interview opportunities, assessing post-graduation success, and increasing the effectiveness of the career services programs before and after graduation.**
 - a. Improve our relationship with the Experiential Learning and Career Services office.
 - b. Develop and maintain a list of companies that hire math majors.
 - c. Develop an alumni panel to meet with and advise current majors.
 - d. Expose mathematics majors to Career Services through the Math Club.
 - e. Encourage student participation in professional societies.
 - i. Provide funding for all Teaching majors to join the Blue Ridge Council of Teachers of Mathematics and participate in their programs.

Goal 2.4 Provide a safe and secure environment for all faculty, staff, students and visitors coming to the University.

- a. Review the Walker Hall evacuation plan at the first department meeting of every year.
- b. Check the Walker Hall elevator maintenance schedule every January.

Goal 2.5 Develop success and prominence in competition in intercollegiate athletics while ensuring that student athletes succeed in the classroom and graduate in a timely manner.

- a. Work with the athletes' advising center as necessary.
- b. Encourage majors to tutor mathematics and statistics through the athletes' advising center.

Goal 2.6 Explore non-traditional timing and delivery of academic programs that support the mission of RU.

- a. Explore the possibility of offering courses at the New Institute in Martinsville.
- b. Continue to offer professional development courses for working teachers at off-campus locations.
- c. Consider offering the new Master's of Science in Education program in Mathematics with cohort groups, possibly using distance learning for some courses.

Strategic Directive 3: Invest in Society

Goal 3.1 Develop a strong relationship between RU and international communities.

Expand study abroad, exchange programs, international internships, international volunteerism, international travel, international faculty research and scholarship collaboration, and faculty exchanges, and revise the scheduling of international opportunities to allow more students and faculty to participate.

- a. Continue to support, and to encourage the university to support, the Electronic Journal of Mathematics and Technology, which attracts authors from many countries and provides opportunities for faculty and students to interact with peers from around the world.
- b. Explore the possibility of setting up a faculty exchange program with a university outside the U.S.

Goal 3.2 Develop a strong relationship between RU, the surrounding region, the Commonwealth, and the nation that fosters academic opportunities, good citizenship, ethical behavior, and civic engagement.

- a. Improve our contacts and connections with local schools and community colleges both by direct service and by developing mutually beneficial projects.
 - b. Collaborate with community organizations to seek funding to support students attending the Summer Bridge program.
 - c. Continue to participate in the Females Advancing STEM program.
 - d. Collaborate with community organizations to strengthen STEM education in our region.
- 1) Explore the expansion of more summer residential academic programs for high school students to provide preparation and motivation for success at the University.**
- a. Continue to support the Summer Bridge program.
 - i. Consider adding a Statistics track to the Summer Bridge program.

Strategic Directive 4: Invest in the Future

Goal 4.1 Increase financial resources to support academic excellence.

- 1) Increase annual giving rates to at least 18% for alumni, 50% for faculty and staff, and 100% for the University's senior administration, members of the Board of Visitors, the RU Foundation Board, the RU Foundation Real Estate Board, and other Boards of Directors that may be established.**
 - a. Continue to support the Math Club as a way to cultivate good relations with our students.
 - b. Achieve 50% faculty participation in departmental scholarship funding.

- 2) Increase funds awarded to the University through grants and sponsored programs.**
 - a. Reassign time for faculty to pursue professional activities likely to lead to grant proposals.
 - b. Continue to reward faculty for submission of serious grant proposals as professional activity.

Goal 4.2 Publicize RU's contributions to the region, the Commonwealth, the nation and the world by developing and implementing a comprehensive communications plan that supports the Strategic Plan.

- 1) Redesign the RU website to enhance functionality, navigation, consistency, and public appeal.**
 - a. Follow the university's lead in site design.
 - b. Consider a complete redesign of our departmental website so that it retains its function as a useful source of information and resources while better presenting the department as an active scholarly community.
 - i. Obtain resources to compensate the department webmaster.