

## 5-Year BS/MS Program in Applied Mathematics

**1. Program:** After successfully completing an interdisciplinary five-year bachelor/master's program, a student will receive at the same time a bachelor's degree and a master's degree in applied mathematics.

**2. Rationale:** Many students do not pursue a graduate degree simply because the time period seems too long. It is possible, with proper mentoring and advising, that many advanced students can finish the requirements of the bachelor's and master's degrees in five years. This will expose them to graduate studies sooner than the traditional programs, allow them to start their professional careers earlier, and enhance interdisciplinary research at The University of Akron.

**3. Description of the five-year program:** The bachelor program in applied mathematics consists of the core course sequences in calculus, differential equations, linear algebra, mathematical models, numerical methods, applied statistics and advanced calculus. Students are also required to take three elective credits of junior or senior level mathematics courses, six credits of junior or senior level courses in a concentration area outside of mathematics, *nine* elective credits at the junior or senior level, which may be in mathematics, an outside area, or some combination of both, and finally thirteen additional elective credits at any level with no restriction on the subject areas.

The masters program in applied mathematics consists of three core courses in real analysis, numerical analysis, and asymptotic methods and modeling. Students are also required to take an additional analysis elective and two additional computational and/or analytical methods courses. In addition, students are required to take at least two other graduate elective courses and complete a master's thesis detailing original research in the formulation, analysis, and solution of problems in mathematics or some area of application.

In the BS/MS five-year program, *six* of the *nine* required junior or senior level elective credits for the undergraduate program would be replaced by graduate level credits. These six credits will be applied to the elective requirements of *both* the bachelor's and master's degree. Further, students in the program may choose to take some of the other undergraduate program elective credits at the graduate level.

*Once a student completes the core course requirement for the bachelor's degree, he or she will be admitted into the graduate school to begin graduate level study.* Typically, a student in this program will complete the core course sequences of the undergraduate program by the end of the third year. During the fourth and fifth year of study the student will be completing our current master's program and six elective credits needed for the bachelor's degree. These elective credits may be at the graduate level (This form must be completed to take graduate courses for undergraduate credit, <http://www.uakron.edu/gradsch/docs/undergradToTakeGrad.pdf>). Note that those students who have participated in our post-secondary program or taken AP classes before entering the University of Akron may begin their graduate studies earlier.

The program outlined above is demanding. Thus, the program will require the students to maintain a 3.00 or better GPA. If a student is not able to do this, then he or she will have the option to complete our present program structure instead of the five-year plan.

**4. Advising and Mentoring:** A department program committee has been established to help students develop their plans of study upon admission into the program, and to review students' progress every semester. In addition, each student in this program will be assigned an experienced faculty advisor who will follow the student's progress on a regular basis. For students interested in interdisciplinary

research, we will use an advising team of faculty. The team members may include faculty in mathematics, education, and engineering, depending on the student's undergraduate major.

**5. Admission to the five-year program:** Students interested in the program should contact the Department of Theoretical and Applied Mathematics prior to their third year of study to begin consultation with the program committee. Students must apply and be admitted to the graduate school during their third year of study to be formally admitted to the program and begin taking graduate level courses in the fourth year of the program. The online graduate school application procedure may be found at <http://www.uakron.edu/gradsch/forms.php>.

**6. Graduate Assistantships:** Students formally admitted to the program are eligible to apply for a graduate assistantship for their fourth and fifth years in the program. The assistantship application form may be found at <http://www.uakron.edu/gradsch/forms.php>.