Graduate Studies in Mathematics
Western Kentucky University

www.wku.edu/math/grad_ms.php
www.wku.edu/math/grad_ma.php

The Department

The Department of Mathematics at Western Kentucky University is one of nine departments in the Ogden College of Science and Engineering. The department has approximately 35 faculty members. All graduate faculty members are active in research and have published widely in pure and applied mathematics, statistics and mathematical education. The department has also established a strong record of research among graduate and undergraduate students. The department offers the Bachelor of Arts, the Master of Arts, and the Master of Science degrees.

The department has many specialized classrooms, a computer laboratory, a testing center, a tutoring facility and a student resource room.

All graduate student offices are equipped with computers. The library subscribes to over 50 professional journals in mathematics or mathematics education and has a large collection of mathematics’ books and monographs.

All faculty and most graduate student offices, departmental classrooms, and computer laboratories are located in the College High Hall. For more information, visit:

www.wku.edu/math

The University

Western Kentucky University, A Leading American University with International Reach, is a comprehensive institution with approximately 20,000 undergraduate and graduate students. Western Kentucky University is committed to attracting students and faculty who are dedicated to academic excellence. The University offers an inviting, nurturing, and challenging environment that is responsive to the intellectual, social, and cultural needs of a diverse learning community. For more information, see:

www.wku.edu

The Community

Located in south-central Kentucky, Bowling Green is a city of 60,000 with a cultural and religious diversity not typically found in communities of its size. Bowling
Green has expanding industrial and retail bases and offers many theater and concert opportunities. Numerous restaurants are available and recreational activities are offered at city, state, and national parks, golf courses, and lakes. Nearby attractions include Mammoth Cave National Park and the National Corvette Museum. More information can be found at

www.wku.edu/about/aboutbg/index.php

Master Degrees in Mathematics

The Department of Mathematics offers the Master of Science (M.S.) degree and the Master of Arts (M.A.) degree. Both degrees have thesis and non-thesis options, and both require 30 hours of graduate-level courses. The M.S. degree is designed for students who wish to obtain a Ph.D. degree, to teach in a community college, or to seek employment in industries needing mathematical or computational expertise. On the other hand, the M.A. is designed for secondary teachers and includes courses that will help them become more knowledgeable about the mathematics they teach in high school while exploring the connections and extensions of that knowledge to college and higher mathematics. The M.A. degree program is offered through online courses. The department also offers five year BA/MS program, which includes undergraduate and graduate studies.

The Master of Science Program

The M.S. program has two options: the “General” and the “Computational” option. The M.S. General Option requires traditional courses in analysis, algebra, topology, and applied mathematics, and is recommended for students who wish to obtain a Ph.D. degree, plan a teaching career at the community college level, or to seek employment in industry. This option is based to a large extent on traditional coursework from applied and pure mathematics. The M.S. Computational Option is designed for students seeking employment in industry with an emphasis on computational mathematics and/or computer science. The option contains a large component of computer science graduate courses and has entry requirements that are tailored to meet the needs of this option. Many high-end positions in industry, the financial sector, or government require hands-on mathematical expertise that goes beyond what is provided by a bachelor’s degree and is different in flavor from our “general option”.

The General Option

A. Admission Requirements The requirements listed below are of December 2012. They may have changed, for current requirements see:

www.wku.edu/math/grad_ms.php

To be admitted to the M.S. program, students must meet the following criteria:
1. Satisfy one of the following conditions:
   have a GAP score of at least 600, have a GRE general score of at least 300, or
   if students have graduated from WKU with a degree in mathematics, a GPA
   of at least 3.3 in their undergraduate major.

2. Completion of the following undergraduate courses, with at most one deficiency:
   (a) a calculus sequence through multivariable calculus;
   (b) linear algebra;
   (c) discrete mathematics;
   (d) an applied mathematics course (e.g., differential equations, probability,
       calculus-based statistics, numerical analysis);
   (e) abstract algebra.

3. A cumulative grade point average of at least 3.0 (on a 4.0 scale) in at least
   one of the following: (i) all mathematics courses that are applicable to the
   undergraduate mathematics major; or (ii) courses specified in (b) through (e)
   of Item 2 listed above.

Admission may be granted to a student having at most one deficiency in the under-
graduate courses listed in Item 2.

B. Academic Requirements

The General Option requires a minimum of 30 hours of graduate-level mathematics
courses. The following are required:

(1) Algebra: MATH 417G Algebraic Systems
   Analysis: MATH 431G Intermediate Analysis I
   Topology: MATH 439G Topology I

   If equivalent courses were taken at the undergraduate level, then the student
   must substitute appropriate graduate mathematics courses selected in
   consultation with a graduate faculty member in Mathematics department.

(2) An applied Mathematics course selected from MATH 529, 531, 535, 536, 540,
    541, 542, 550, 570, STAT 549, or as approved by the Graduate Committee of
    Mathematics department.

(3) MATH 532 Real Analysis

(4) One of the following two-course sequences: MATH 417G-517, 439G-539, 450G-
    550, 435G-535, 470G-570, 529-540, 435G-531, 535-536; 405G-406G can be
    taken by students who have substituted a 500-level course for at least one of
    the three courses listed in (1).

(5) The remaining mathematics courses in the student’s program must be chosen
    535, 536, 539, 540, 541, 542, 550, 560, 570, 590 or STAT 549.

I cannot imagine attending graduate school anywhere other than WKU. The
incredibly welcoming and helpful faculty members in the Department of Math-
ematics are some of the best on campus, and, along with the other graduate students,
make you feel like you are part of a family. Also, the chance to teach under-
graduates while obtaining my own degree was a valuable opportunity which I not only
enjoyed immensely, but also provided invaluable experi-
ence for my desired career.

Tonja Miick
M.S., 2013
Instructor
Mathematics, WKU
(6) A maximum of 12 hours at the 400G-level may be included in the entire program. Graduate students are required to complete additional problem sets and/or papers to receive graduate credit for these courses, which are also open to undergraduate students.

(7) Students who choose to write a thesis are required to complete 6 hours of MATH 599 – Thesis Research and Writing and to give an oral defense of the thesis.

(8) A student may, upon prior approval of the Graduate Committee of Mathematics department, include in his/her program a maximum of 6 hours of course work from a related field.

(9) Comprehensive exams are required.

**Research Tool Requirement.** A research tool is required and that entails course work beyond the 30 hours of mathematics. The research tool cannot be completed during the last semester. The purpose of the research tool is to provide a student with tools that make a graduating student more marketable and to assist the student in his/her research. A student who is interested in industry employment should look at options that might make him/her more marketable to potential employers. A student who plans to do a thesis should think about what would be helpful for the thesis.

The research tool can be fulfilled in a variety of ways, some of which are listed below:

a) Courses in other disciplines. The research tool course should be in disciplines that have a strong relation to mathematics. Examples of such disciplines are computer science, physics or economics among many other disciplines. The level (200/300/400/graduate) of the course needs to be appropriate to the students’ background. For example, any graduate or 400 level computer science course will be accepted. However, a student with no prior programming experience cannot take such a course and instead could choose a first year undergraduate programming course.

b) Learning how to use a standard statistical package (such as SAS or SPSS).

c) A mathematics reading course if the reading course is aimed at exposing the student to research articles in an area of mathematics. A reading course that counts as a research tool is not a special topics course, i.e. the reading cannot be based on a single source or have a very narrow focus. It should also not be the continuation of a prior course. The offerings of such reading courses will be limited to exceptional cases. Reading courses should not be used to replace other course offerings of the department that a student could take at the same time.

d) A foreign language examination (appropriate if this language is useful to the student in his or her research).
The choice of a research tool must be approved by the Graduate Committee of the Mathematics department in advance or at the latest at the time when the student fills out the degree program form. The research tool cannot be taking during the last semester.

**The Computational Mathematics Option**

**A. Admission Requirements**

1. Have a GAP score of at least 600, have a GRE general score of at least 300, or if students have graduated from WKU with a degree in mathematics or computer science, a GPA of at least 3.3 in their undergraduate major.

2. Completion of the following undergraduate courses: (a) a one-year calculus sequence; (b) linear algebra; (c) discrete mathematics (d) a one-year sequence of programming courses; (e) a B.A. degree with a major in either Computer Science, Engineering, Mathematics or Physics.

3. A cumulative grade point average of at least 3.0 (on a 4.0 scale) in at least one of the following: (i) all mathematics and computer science courses that are listed in (a) through (d) of Item 2 above; or (ii) all courses in the major listed in (e) of Item 2 above.

Students may not enter the program if they have a deficiency in the courses listed in Item 2 above.

**B. Academic Requirements**

The Computational Mathematics Option requires a minimum of 30 hours of graduate-level mathematics and computer science courses. The following are required:

1. **MATH 405G Numerical Analysis I**
   - MATH 406G Numerical Analysis II
   - STAT 549 Statistical Methods I
   - MATH 470G Introduction to Operations Research
   - CS 549 Algorithms Analysis

2. At least two courses from the list below are required:
   - CS 562 Parallel and Distributed Computing
   - CS 565 Data Mining Techniques and Tools
   - CS 595 Advanced Topics in computer science (with permission of advisor, i.e. depending on what the topic of the course will be)

3. The remaining courses will be chosen from the list below:
   - MATH 431G Intermediate Analysis I
   - MATH 541 Graph Theory
   - MATH 570 Topics in Operations Research
   - MATH 540 Stochastic Processes
   - MATH 542 Advanced Topics in Discrete Mathematics
   - MATH 590 Advanced Topics in Mathematics (with permission of advisor, i.e. depending on what the topic of the course will be.)

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WKU is a special place for me. It is my first experience in studying abroad and it will be a valuable memory in my life. The university is so beautiful and the staff of the Math Department are nice. I especially appreciate all the professors in the Math Department for being very friendly and for giving me help and encouragement.

Gang Cheng
M.S., 2013
(4) A maximum of 12 hours at the 400G-level may be included in the entire program. Graduate students are required to complete additional problem sets and/or papers to receive graduate credit for these courses, which are also open to undergraduate students.

(5) Comprehensive exams are required.

(6) The research tool requirement is satisfied by the computer science classes.

All students in the M.S. program must have a working knowledge of a high-level programming language or computer algebra system.

Five Year BA/MS Program

Western Kentucky University’s undergraduate students who have an interest in the Department of Mathematics program to obtain both a Bachelor of Arts in Mathematics (528) and a Master of Science in Mathematics (085) may apply to five year BA/MS program. The course schedule can be found at:

www.wku.edu/math/grad-ms.php

The Master of Arts Program

The M.A. degree is designed specifically to accommodate the busy schedules of secondary mathematics teachers. All course work offered is online so that teachers have flexibility to complete course work at non-traditional times. Access to the internet is required.

A. Admission Requirements

To be admitted to the M.A. program, students must meet the following criteria:

1. satisfy one of the following conditions:
   have a GAP score of at least 600, have a GRE general score of at least 300, or if students have graduated from WKU with a degree in mathematics, a GPA of at least 3.3 in their undergraduate major.

2. a bachelor’s degree in mathematics, OR the completion of the following undergraduate courses, with at most one deficiency:
   (a) a calculus sequence through multivariable calculus, (b) linear algebra, (c) discrete mathematics, (d) probability or calculus-based statistics, (e) abstract algebra, and (f) geometry.

   Applicants must also have or be eligible for a teaching certificate* for Secondary Mathematics (Grades 8-12). A copy of the certificate or statement of eligibility must be submitted with the application.

   *Kentucky teachers whose certificates have expired may be admitted into the program, but they may enroll in no more than six hours before they must apply
to the Kentucky Education Professional Standards Board for re-issued certificates. After completion of six hours, a student admitted with an expired certificate must submit a copy of the re-issued certificate before being allowed to register for any additional courses. Applicants from out-of-state with expired certificates must complete the requirements for their respective states to renew their certificates and submit a copy of the reissued certificate.

B. Academic Requirements

The M.A. degree requires in a minimum of 30 – 34 hours of graduate-level courses, including the following:

1. Mathematics Content (18 hours)

   (i) Core Mathematics Courses: The student is required to complete the following courses:
   - Math 501 Introduction to Probability and Statistics I
   - Math 503 Introduction to Analysis
   - MATH 511 Algebra from an Advanced Perspective
   - MATH 512 Geometry from an Advanced Perspective

   (ii) Elective Mathematics courses: (Six hours of mathematics courses chosen from those listed below:)

   A maximum of 9 hours at the 400G-level may be included in the entire program.

   Comprehensive exams in mathematics are required. A student who chooses to do a thesis is required to complete 6 hours of MATH 599 Thesis Research and Writing and to give an oral defense of the thesis.

2. Secondary Education (12-16 hours)

   This program is designed to develop Teacher Leaders who can positively impact student learning in their classrooms and schools. Courses and experiences include Professional Learning Communities in which students interact with other graduate students from various content areas and grade levels to discuss and work on real world challenges and promising practices they encounter in schools.

   An Action Research Project for Teacher Leaders focusing on a classroom, school, or district issue is the capstone for the completion of the Secondary Education portion of the degree.

   During the first course in the program, TCHL 500 Foundations of Teacher Leadership, students will complete an assessment process that will be used in determining which TCHL core courses they must take (see Important Note

I’m really thankful for my time at WKU. I was able to make many friends with my peers, many of whom were international students. I hadn’t had the opportunity to know many people from different countries so I am very thankful for that opportunity. My teachers were always very supportive of me. They encouraged me and were always available when I needed help; I also enjoyed the small class sizes and personal relationships I was able to have with the faculty/staff at WKU that I wouldn’t have been able to have at a larger university. The teachers at WKU really care about each and every student who pursues a graduate degree in mathematics. The excellent education I received at WKU has allowed me to accomplish my goal of teaching math for Owensboro Community and Technical College.

Donna Daulton
M.S., 2013
Instructor
Owensboro Community and Technical College
below). All students must either complete TCHL 540, 544, 548, 550, 554, and 558 or pass proficiency evaluations for these courses. TCHL 500, 530, and 560 are required for all students, and there are no proficiency evaluations that may be substituted for these courses.

Important Note: While enrolled in TCHL 500, master’s candidates will use several documents, including their KTIP assessments or in-kind examples, dispositions self-surveys, referrals from school personnel, and their respective School Improvement Plan, to develop with their respective program advisors individualized programs of study of 30-34 hours related to Kentucky Teacher Standards and professional goals. Each student’s program of study will include some or all of the TCHL courses, at least one content course specific to their initial teaching certification areas, plus additional education-related or content courses.

(i) Professional Education Core (9-16 hours) Courses denoted with an asterisk are required courses.

*TCHL 500  Foundations of Teacher Leadership (3 hours)
*TCHL 530  Curriculum Development (3 hours)
TCHL 540  Classroom Instruction: Instructional Strategies (1 hour)
TCHL 544  Classroom Instruction: Equitable School and Community Partnerships (1 hour)
TCHL 548  Classroom Instruction: Managing the Learning Environment (1 hour)
TCHL 550  Student Assessment I: Fundamentals of Student Assessment (1 hour)
TCHL 554  Student Assessment II: Standardized Testing (1 hour)
TCHL 558  Student Assessment III: Classroom Tests and Instruments (2 hours)
*TCHL 560  Action Research Capstone for Teacher Leaders (3 hours)

(ii) Education Electives (0-3 hours) Students who successfully complete the proficiency examinations for TCHL 540, TCHL 544, TCHL 548, TCHL 550, TCHL 554, and/or TCHL 558 may substitute another education course with advisor approval. TCHL 520 Principles of Action Research for Teacher Leaders is strongly recommended.

Secondary Education Mid-Point Assessment Requirements: To ensure that all master’s candidates are proficient on Advanced Level Kentucky Teacher Standards, all Critical Performances associated with the above TCHL courses must be completed, even if a candidate’s program of studies does not include the courses. Except for TCHL 560, which should be taken toward the end of their program, candidates may only complete 6 hours in their Specialization Component before they have taken all TCHL courses and/or uploaded all Critical Performances and have achieved an average score of 3.0 on all performances and an average score of 3 on dispositions. Additional course work may be required based on the assessment results.
Secondary Education Completion Requirements:
1. Successfully complete TCHL 560 (Course grade of C or higher).
2. Give acceptable presentation of action research in approved venue.
3. Achieve a minimum 3.0 GPA overall and in secondary education course work.

Thesis Preparation and Presentation

The department requires all students who are supported by an assistantship to take the thesis option (can be waived by the Graduate director). Writing a thesis is usually a wonderful and rewarding experience for students. It represents a high point in their academic careers, and is a necessary tool for doctoral dissertation research and writing. Students who choose to write a thesis are required to complete 6 hours of MATH 599 – Thesis Research and Writing and to give an oral defense of the thesis. Students who start on the thesis process will be given departmental and college guidelines by the graduate director.

For the thesis preparation and presentation, see the university guidelines at:

www.wku.edu/graduate/students/thesis/

and the deadlines for submitting the thesis to the Ogden College Dean’s office at:

www.wku.edu/graduate/students/thesis/deadlines.php

Comprehensive Exams

A student selecting to write a thesis is required to present an oral defense of the thesis and complete comprehensive written exams based on four courses (normally including one year-long sequence) approved by the departmental Graduate Committee. Non-thesis students must complete comprehensive written exams based on six courses (normally including two year-long sequences) approved by the departmental Graduate Committee. A student can decide for which courses she/he wants to take comprehensive exams subject to the rules outlined for the selected option within our graduate program.

Graduate Assistantships

Graduate assistantships are available, on a competitive basis, from the Department of Mathematics. A student with an assistantship will conduct several recitation or support sessions for standard undergraduate courses. Such courses include the following: General Mathematics (Math 109), Calculus I (Math 136) and Calculus II (Math 137). The total work load of a graduate assistant (including preparation, grading and office hours for the recitation or support sessions) is estimated at about 20 hours per week. The department expects that first year graduate assistants are arriving on the WKU campus before the semester starts so that the necessary paperwork (background check, paperwork to put the student on payroll, key and office assignments) can be completed and the student can prepare for the teaching
assistant duties. For the details of when to arrive the student should contact the graduate director once an assistantship has been awarded. The monetary value of a graduate assistantship is currently (2013) valued at $9,000 per semester (or $18,000 for the academic year), however this may increase in future years.

Graduate assistants are reviewed each semester and may be re-appointed. Competitive summer graduate assistantships may be available. Students should submit applications for admission to the Graduate School. For information, see

www.wku.edu/graduate/prospective_students/

Application for assistantships are found at the departmental webpage, see

www.wku.edu/math/grad_ms.php

For second year graduate students who have excelled in the program the department has a limited number of Premium assistantships available. The monetary value of a premier assistantship is currently valued at $11,000 per semester (or $22,000 for the academic year); however, this may increase in future years. These premium assistantships are given out on a highly competitive basis for students that have promise in teaching and research. These students must complete the Best Practices in Mentoring and College Teaching Program (BPMCT), a basic training program for students wanting to become Instructor of Record. Teaching assistants with premium assistantships will be employed teaching a section. Examples of such section could include College Algebra (Math 116), Trigonometry (Math 117) as an instructor of record and are assigned a faculty research mentor who also directs their Master’s thesis.

All graduate assistants pay tuition at the rates published on the Office of the Bursar web site:

http://www.wku.edu/bursar

Tuition has be payed from the assistantship funds allocated to the student.

All students who are on assistantship are expected to write a thesis, i.e., to chose the thesis option on their degree program.

Application timeline

Because assistantships are offered on a competitive basis, the earlier the student applies, the better. However, applications for assistantships are considered at any time until the available departmental funds have been exhausted.

To receive maximum consideration for a graduate assistantship, all application materials (application and three professional letters of recommendation for first-time students; application for continuation for students wishing to extend the current assistantship) need to be received in the Graduate School on time. Please check the following web page for applications:

www.wku.edu/graduate/aid/ga/
Mathematics Graduate Courses

Up to 12 hours of 400G level mathematics courses may be applied toward the M.S. and up to 9 hours of 400G level mathematics courses may be applied toward the M.A. degree. Graduate students are required to complete additional problem sets and/or papers to receive graduate credit for 400G level courses, which are also open to undergraduate students.

All prerequisites require a grade of C or better and equivalent courses taken at other institutions with equivalent grades of C or better may serve as prerequisites. For a listing of the courses which may be applied to the option of your choice, please refer to the descriptions above. For the most current listing of available courses, see the current graduate catalog at

www.wku.edu/graduate/prospective_students/catalog.php

MATH 403G Geometry for Elementary and Middle School Teachers.
MATH 405G Numerical Analysis I (CS 405G).
MATH 406G Numerical Analysis II.
MATH 409G History of Mathematics.
MATH 411G Problem Solving for Elemen. and Mid. School Teachers.
MATH 413G Algebra and Technology for Middle Grades Teachers.
MATH 415G Algebra and Number Theory.
MATH 417G Algebraic Systems.
MATH 421G Problem Solving for Secondary Teachers.
MATH 423G Geometry II.
MATH 429G Probability and Statistics II.
MATH 431G Intermediate Analysis I.
MATH 435G Partial Differential Equations.
MATH 439G Topology I.
MATH 450G Complex Variables.
MATH 470G Introduction to Operations Research.
MATH 500 Readings in Mathematics.
MATH 501 Introduction to Probability and Statistics I.
MATH 502 Introduction to Probability and Statistics I.
MATH 503 Introduction to Analysis.
MATH 504 Application of Technology to Problems in Mathematics.
MATH 506 Mathematical Applications for Middle Grades Teachers.
MATH 507 Mathematics Concepts for Elementary Teachers.
MATH 508 Number Concepts for Elemen. and Mid. Grades Teachers.
MATH 510 Intermediate Statistics.
MATH 511 Secondary Mathematics from an Advanced Perspective I.
MATH 512 Secondary Mathematics from an Advanced Perspective II.
MATH 514 Applications and Modeling for Teachers.
MATH 517 Topics from Algebra.
MATH 529 Applied Probability.
MATH 531 Advanced Differential Equations.
MATH 532 Real Analysis.
MATH 535 Advanced Applied Mathematics I.
MATH 536 Advanced Applied Mathematics II.

My name is Nihan Acar from Turkey and I earned my Master’s degree in Mathematics at WKU. I would definitely recommend every qualified student to join the Mathematics Graduate School at WKU. The professors are quite experienced, helpful, and encouraging. Since they are experts in their respective areas, students are provided with a wealth of knowledge in Mathematics. WKU offers many Teaching Assistantship opportunities for graduate students. As a Graduate Teaching Assistant, I was able to cover all my expenses and I gained valuable teaching experiences while obtaining my Masters’ degree. Overall, WKU’s Department of Mathematics is a very welcoming and great place for whom wants to pursue a prestigious Master’s Degree.

Nihan Acar
M.S., 2012
Ph.D. Student
Florida State Univ.
MATH 539 Topology II.
MATH 540 Stochastic Processes.
MATH 541 Graph Theory.
MATH 542 Advanced Topics in Discrete Mathematics.
STAT 549 Statistical Methods I.
MATH 550 Complex Analysis.
MATH 570 Topics in Operations Research.
MATH 590 Special Topics in Mathematics.
MATH 599 Thesis Research and Writing.
MATH 600 Maintaining Matriculation.

The Graduate Faculty

Ferhan Atıcı, Professor and Graduate Director, Ph.D. University of Nebraska at Lincoln, 1995. Difference equations, differential equations, calculus on time scales, dynamic equations and their applications to economics, fractional calculus and its applications to medical sciences.

Melanie Autin, Associate Professor, Ph.D. University of South Carolina, 2007. Statistics education, applied statistics.

Summer Bateiha, Assistant Professor, Ph.D. University of Oklahoma, 2010. Equity in mathematics education.

Kanita DuCloux, Assistant Professor, Ph.D. University of Georgia, 2009, Mathematics Education.

Molly Dunkum, Associate Professor, Ph.D. University of Kentucky, 2005. Homological algebra.

Claus Ernst, Professor, Ph.D. Florida State University, 1988. Low dimensional geometric topology and knot theory; physical knots and their applications to molecular biology and chemistry.

Peter Hamburger, Professor and Department Head, Ph.D. Eötvös Loránd University, Budapest Hungary, 1971. Combinatorics, topology, and graph theory.

Nezam Iraniparast, Professor, Ph.D. University of California at Davis, 1984. Partial differential equations, and specifically, hyperbolic characteristic initial boundary value problems, which can be described as determining waves from prescribed initial data and the data along the paths of propagation.

Bruce Kessler, Professor and Department Head, Ph.D. Vanderbilt University, 1997. Wavelet theory and its applications to signal processing and pattern recognition, mathematical modeling, curriculum development in mathematics education.
Mikhail Khenner, Assistant Professor, Ph.D. Perm State University, Russia and Universite Aix-Marseille, France, 1998. Physical applied mathematics, modeling for materials science, fluid dynamics, numerical methods for free-boundary problems.

Dominic Lanphier, Associate Professor, Ph.D. University of Minnesota, 1999. Number theory, automorphic forms and L-functions, discrete mathematics.

Hope Marchionda, Associate Professor, Ph.D. Clemson University, 2006. Mathematics education.

Vivian Moody, Associate Professor, Ph.D., University of Georgia, 1997. Critical race theory in mathematics education; Pre-Service teachers self-efficacy beliefs and pedagogical content knowledge in mathematics.

Samangi Munasinghe, Assistant Professor, Ph.D. Texas A&M University, 2006. Several complex variables and analytic spaces.


Ngoc Nguyen, Assistant Professor, Ph.D. Bowling Green State University, 2010. Stochastic Frontier Analysis, Multiple Comparison, Economical Statistics.

Attila Pór, Associate Professor, Ph.D. Eötvös Loránd University, Budapest, Hungary, 2003. Combinatorial geometry, combinatorics, convex geometry.

Tom Richmond, Professor, Ph.D. Washington State University, 1986. General topology, ordered sets, partially ordered topological spaces, compactifications.


Art Shindhelm, Professor, Ph.D. Syracuse University, 1974. Generalizations of the Banach-Saks Property.

Richard Schugart, Assistant Professor, Ph.D., North Carolina State University, 2005. Mathematical biology.


Di Wu, Associate Professor, Ph.D. Iowa State University, 2006. Computational biology and optimization.

I have been awarded the degree of Master of Mathematics from Western Kentucky University. During two years at graduate study, on one hand, I have learned quite a bit from the courses themselves, which have cultivated my desire to do scientific research, and developed my analytical and problem solving abilities. My coworkers and professors in the Mathematics department are all people who share my love of math, so we were able to discuss questions and do research together, emphasizing teamwork in all that we accomplished. On the other hand, the campus life is harmonious and fascinating. I made many friends who are from all over the world in WKU. I also got a lot of help from people who were around me on campus. I miss and love WKU. All Hilltoppers remember the motto of WKU: The Spirit Makes the Master. Go Toppers!

Fang Wu
M.S., 2012
Publications with Graduate Students (2005-present)

- A. Güldürdek an T. Richmond, A Every Finite Topology is Generated by a Partial Pseudometric, Order, 22(2005), no. 4, 415-421.


- D. Wu, C. Ernst and R. T. Davis, An Efficient Geometric Build-up Algorithm for Protein Structure Determination with Sparse Exact Distance Data, Proceedings of IEEE International Conference on Bioinformatics and Biomedicine Workshops (BIBM), 2009(2009), 173-178.


- D. Wu, C. Ernst and R. T. Davis, Protein Structure Determination via an Efficient Geometric Build-up Algorithm, Biomedical Central, 2010(Supp1), 13.


For More Information. . .

Visit our web page at www.wku.edu/math, or contact

- **Dr. Ferhan Atici**, Director of Graduate Program
  
  Address: Department of Mathematics  
  Western Kentucky University  
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  office: COHH 4107  
  e-mail: ferhan.atici@wku.edu  
  Phone: (270)-745-6229  
  Fax: (270)-745-3699

- For Mathematics MA Program, please contact **Dr. Hope Marchionda**, at 
  
  hope.marchionda@wku.edu or (270) 745 2961.

### About the Cover

A 20 unit-step random polygon in a confinement sphere of radius $R=1.1$. The 20 step polygon is highly knotted, in this case the knot is a the 9 crossing connected sum of three trefoil knots. The generation of random polygons in a confinement is part of a study that is modeling the embedding of physical strings in tight spatial confinement such as the embedding of viral DNA in a virus head.

The image was generated by Dr. Claus Ernst.