

Graduate Studies in Mathematics



Algebra, Number Theory, Analysis,
Geometry, Topology, Mathematical Physics

The Department of Mathematics, one of four Mathematical Sciences departments at Western, offers both a M.Sc. and a Ph.D. degree in Mathematics. The M.Sc. degree is normally course-based and may be completed in 8 months.



The University of Western Ontario

Western - The Right Choice



The University of Western Ontario is Canada's sixth largest university and the largest in Southern Ontario outside of Toronto. Established in 1878, it is home to nearly 1,200 faculty members, 29,000 undergraduates and 3,000 graduate students (www.uwo.ca).

In 2006, Western was ranked 1st in the Globe and Mail's University Report card for the overall quality of education and, in 2005, 3rd overall among the country's 15 large universities by Maclean's magazine. Through its 12 faculties and schools and 3 affiliated colleges, the university offers more than 60 different degree and diploma programs.

Mathematics is housed in Middlesex College, a landmark building on Western's idyllic campus. The campus, located on the banks of the river Thames, is one of the most beautiful in North America, with a mix of modern facilities, Gothic architecture, gardens and nature trails. Middlesex College is also home to the Grad Club, a popular gathering place for graduate students and faculty from all over campus.

With a population close to 430,000, London is Canada's 10th largest city (www.london.ca). It is located two hour's drive southwest of Toronto. The city is graced with beautiful parks and miles of paved riverside walking and cycling trails.

Mathematics at Western

There are four Mathematical Sciences departments at the University of Western Ontario. The Department of Mathematics has 17 graduate faculty and 9 postdoctoral fellows. There are 16 graduate faculty in the Department of Applied Mathematics, 27 in Computer Science, and 16 in Statistical and Actuarial Sciences. The Department of Mathematics has a favourable student-to-faculty ratio that affords close personal contact between graduate students and faculty. In total, there are over 200 graduate students within the Mathematical Sciences departments.

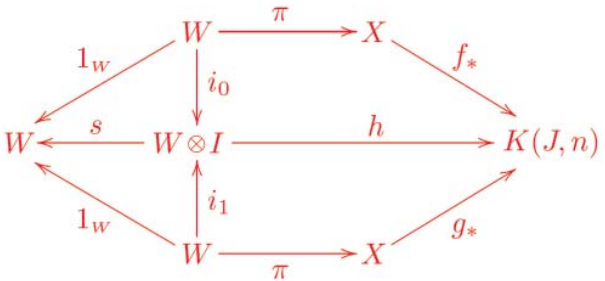
Mathematics has a large selection of graduate courses and seminars. In addition to the weekly colloquium and seminars in algebra and analysis, this year, there are specialized seminars in noncommutative geometry, mathematical physics, geometry and combinatorics, and stacks. Every year, the department invites a very prominent mathematician to present the Distinguished Lecture Series.



The department also hosts an informal Pizza Seminar once a month. Coffee and snacks are served in the departmental lounge before each colloquium. Following late afternoon talks, faculty and graduate students often gather in the Grad Pub located one floor below.

Fields of Active Research

Opportunities for graduate study and research are available in most modern fields of pure mathematics. The focus of the department is the study of algebraic and analytic invariants of geometric structures. The contemporary concept of homotopy is a common thread: it is about how pieces of geometric objects



fit together. This idea has applications throughout mathematics and physics; algebraic K-theory, for example, has evolved into the study of homotopical invariants of algebraic-geometric and number-theoretic objects. Algebraic groups are described by their Lie algebras, and the interplay between the structure of groups and Lie algebras is a part of combinatorial algebra. Number-theoretic questions can be encoded in geometric objects called arithmetic schemes, which are analyzed with analytic, homotopical and cohomological techniques. The study and classification of knots employs similar techniques. Noncommutative geometry, the study of geometric structures arising from noncommutative C^* -algebras, arose with the reinterpretation of the standard model for elementary particles. Cyclic homology is used to distinguish objects in this realm, much as homology and homotopy groups are used to classify spaces. Harmonic analysis is the study of functions on topological groups that are invariant under closed subgroups, and is similar in a broad sense to the study of homogeneous spaces in algebraic geometry. Complex analytic geometry studies the special properties of geometric objects defined over the complex number field with a mixture of analytic and algebraic techniques.

Graduate Faculty Members

BOIVIN, A.

Complex analysis, approximation theory

CHRISTENSEN, J.D.

Algebraic topology, mathematical physics

DENHAM, G.

Algebraic and geometric combinatorics

DHILLON, A.

Algebraic geometry

FOTH, T.

Complex and symplectic geometry

JARDINE, J. F.

Algebraic K-theory, algebraic topology

KANE, R.

Algebraic topology, invariant theory

KHALKHALI, M.

Noncommutative geometry, cyclic homology

LÁRUSSON, F.

Complex analysis, algebraic geometry

LEMIRE, N.

Invariant theory, representation theory

MILNES, P.

Harmonic and functional analysis

MINÁČ, J.

Galois cohomology, quadratic forms

RANKIN, S.

Knot theory

RENNER, L.

Algebraic groups and monoids

RILEY, D.

Group theory, ring theory, Lie theory

SHAFIKOV, R.

Complex analysis

SINNAMON, G.

Harmonic and functional analysis

Postdoctoral Fellows

ANEL, M. (Toulouse)

BIEDERMANN, G. (Bonn)

CAN, M. (Penn)

CHAKRABARTI, D. (Wisconsin)

CHEBOLU, S. (Washington)

CSORBA, P. (Lausanne)

HELLER, J. (Northwestern)

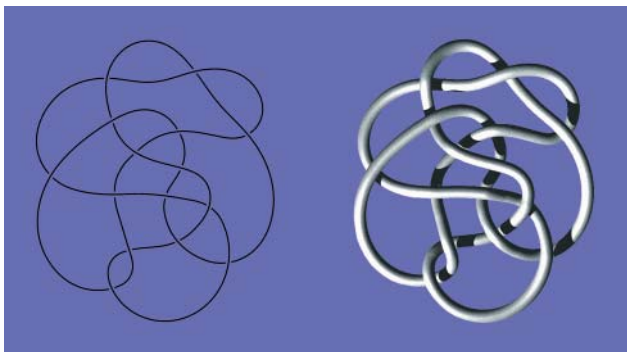
KAYGUN, A. (Ohio State)

WORYTKIEWICZ, K. (Lausanne)

Graduate Admissions

Application Process

Complete details can be found on our website www.math.uwo.ca. There is no application fee, and an online application may be submitted via the website www.uwo.ca/grad/. We recommend that you apply before February 15 for admission in September. However, it is possible to start in either January or May, and applications are accepted throughout the year.



Financial Details

All graduate students in mathematics are fully supported by a combination of research scholarships and teaching assistantships. In 2006-07, the minimum support per year for Canadian citizens and permanent residents is \$19,800 for MSc and \$21,000 for PhD. To compensate for the differential in tuition fees, the minimum support for visa students is \$26,400 for MSc and \$27,600. The MSc program may be completed within 8 months and the funding is prorated accordingly.

Cost of Living



The cost of living in London is relatively low. For example, the standard of living afforded by an annual income of \$17,000 (approximate after-tuition income) in London would require \$27,000 in Toronto, \$25,000 in Montréal, and \$26,500 in Vancouver (data from www.2ontario.com). University residence is available for individuals and families. See www.uwo.ca/hfs/housing for further details.





Contact Us:

Graduate Affairs Committee
Department of Mathematics
Middlesex College
The University of Western Ontario
London, Ontario
Canada
N6A 5B7

Telephone: (519) 661-3641

Fax: (519) 661-3610

E-mail: math-grad-program@uwo.ca

www.math.uwo.ca/~gradchair/gradprog.htm

