

# Course Schedule - Spring 2009

## Mathematics

012 **Algebra** credit: 3 hours.

Rapid review of basic techniques of factoring, rational expressions, equations and inequalities; functions and graphs; exponential and logarithm functions; systems of equations; matrices and determinants; polynomials; and the binomial theorem. Students who need both algebra and trigonometry should enroll in MATH 016. Credit is not given for both MATH 012 and MATH 016. Credit not applicable toward graduation in certain curricula. Prerequisite: 1.5 units of high school algebra; 1 unit of high school geometry.

Students must register for one discussion and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
37506	discussion-recitation	AD3	04:00 PM - 04:50 PM	W	room 347 Altgeld Hall	Hu, P
39373	lecture	AL1	11:00 AM - 11:50 AM	MWF	room 245 Altgeld Hall	Purkayastha, S
39581	lecture-discussion	X1	12:30 PM - 01:50 PM	MTWR	room 445 Altgeld Hall	Wahl, K
39581: Restricted to Transition Program students. Restricted to students in the transition/bridge program.						

103 **Theory of Arithmetic** credit: 4 hours.

Analyses of the mathematical issues and methodology underlying elementary mathematics in grades K-5. Topics include sets, arithmetic algorithms, elementary number theory, rational and irrational numbers, measurement, and probability. There is an emphasis on problem solving. Priority registration will be given to students enrolled in teacher education programs leading to certification in elementary or childhood education. Prerequisite: MATH 012 or equivalent.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

Students must register for one lab and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
37821	laboratory	AB1	11:00 AM - 12:40 PM	F	room 14 Illini Hall	Dewar, M
37821: Quant Reasoning I course.						
37822	laboratory	AB2	03:00 PM - 04:40 PM	R	room 14 Illini Hall	Purkayastha, S
37822: Quant Reasoning I course.						
37823	laboratory	AB3	01:00 PM - 02:40 PM	R	room 14 Illini Hall	Yancey, M
37823: Quant Reasoning I course.						

37824	laboratory	AB4	01:00 PM - 02:40 PM	F	room 14 Illini Hall	Tsai, C
37824: Quant Reasoning I course.						
37825	lecture	AL1	10:00 AM - 10:50 AM	TR	room 165 Everitt Elec and Comp Engr Lab	Purkayastha, S
37825: Quant Reasoning I course.						
37825: Open to Elementary Education, Early Childhood and Pre-Teacher Ed ONLY. Restricted to Special Education, Early Childhood Education, Elementary Education, and Pre-Early Chld/Elem Ed/Spec Ed.						

115 **Preparation for Calculus** credit: 3 hours.

Reviews trigonometric, rational, exponential, and logarithmic functions; provides a full treatment of limits, definition of derivative, and an introduction to finding area under a curve. Intended for students who need preparation for MATH 220, either because they lack the content background or because they are not prepared for the rigor of a university calculus course. Credit is not given for both MATH 115 and either MATH 014 or MATH 016. Students may not receive credit for MATH 115 if MATH 115 is taken after receiving credit for MATH 220 or MATH 221. Prerequisite: MATH 012 and an adequate ALEKS score.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

CRN	Type	Section	Time	Days	Location	Instructor
51554	lecture-discussion	D1	11:00 AM - 12:20 PM	MTWR	room 445 Altgeld Hall	Wahl, K
51554: Quant Reasoning I course.						
51554: Restricted to Transition Program students. Restricted to students in the transition/bridge program.						
46408	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 314 Altgeld Hall	McNeilly, J
46408: Quant Reasoning I course.						

117 **Elementary Mathematics** credit: 4 hours.

Analyses of the mathematical issues and methodology underlying elementary mathematics in grades 6-8. Topics include the Real number system and field axioms, sequences and series, functions and math modeling with technology, Euclidean and non-Euclidean geometry, probability and statistics. Priority registration will be given to students enrolled in teacher education programs leading to certification in elementary education. Prerequisite: MATH 012 or equivalent.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

Students must register for one lab and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
37509	laboratory	AB1	01:00 PM - 02:40 PM	W	room 14 Illini Hall	Vandehey, J
37509: Quant Reasoning I course.						

37510	laboratory	AB2	11:00 AM - 12:40 PM	R	room 14 Illini Hall	Vandehey, J
37510: Quant Reasoning I course.						
37511	laboratory	AB3	03:00 PM - 04:40 PM	W	room 14 Illini Hall	Kim, Y
37511: Quant Reasoning I course.						
37512	laboratory	AB4	11:00 AM - 12:40 PM	W	room 14 Illini Hall	Kim, E
37512: Quant Reasoning I course.						
37513	lecture	AL1	03:00 PM - 04:40 PM	T	room 1310 Digital Computer Laboratory	Purkayastha, S
37513: Quant Reasoning I course.						
37513: Open to Elementary Education, Early Childhood and Pre-Teacher Ed ONLY.						

119 ***Ideas in Geometry*** credit: 3 hours.

General education course in mathematics, for students who do not have mathematics as a central part of their studies. The goal is to convey the spirit of mathematical thinking through topics chosen mainly from plane geometry. Prerequisite: Two units of high school algebra; one unit of high school geometry; or equivalent. This course satisfies the General Education Criteria for a Quant Reasoning I course.

CRN	Type	Section	Time	Days	Location	Instructor
37521	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 141 Altgeld Hall	Miller, J
37521: Quant Reasoning I course.						

124 ***Finite Mathematics*** credit: 3 hours.

Introduction to finite mathematics for students in the social sciences; introduces the student to the basic ideas of logic, set theory, probability, vectors and matrices, and Markov chains. Problems are selected from social sciences and business. Prerequisite: MATH 012 or an adequate ALEKS score. This course satisfies the General Education Criteria for a Quant Reasoning I course.

CRN	Type	Section	Time	Days	Location	Instructor
41627	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 447 Altgeld Hall	Wenger, P
41627: Quant Reasoning I course.						
37556	lecture-discussion	E1	01:00 PM - 01:50 PM	MWF	room 143 Altgeld Hall	Reynolds, P

37556: Quant Reasoning I course.						
51237	lecture-discussion	M1	09:00 AM - 10:20 AM	T	room 343 Altgeld Hall	Ahlgren, A
51237: Quant Reasoning I course.						
51237: This section has a blended format in which half of the content is delivered in lecture and half is delivered on-line.						
37553	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 147 Altgeld Hall	Lesaulnier, T
37553: Quant Reasoning I course.						

125 **Elementary Linear Algebra** credit: 3 hours.

Basic concepts and techniques of linear algebra; includes systems of linear equations, matrices, determinants, vectors in n-space, and eigenvectors, together with selected applications, such as Markov processes, linear programming, economic models, least squares, and population growth. Credit is not given for both MATH 125 and any of MATH 225, MATH 410, or MATH 415. Prerequisite: MATH 012 or an adequate ALEKS score.

CRN	Type	Section	Time	Days	Location	Instructor
37558	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 1320 Digital Computer Laboratory	Eldred, R
37562	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 1320 Digital Computer Laboratory	Smith, K
37560	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 112 Chemistry Annex	Smith, K

161 **Statistics** credit: 3 hours.

Same as STAT 100. See STAT 100.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

CRN	Type	Section	Time	Days	Location	Instructor
37482	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 114 Transportation Bldg	Hirtz, N
37482: Quant Reasoning I course.						
37493	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 100 Noyes Laboratory	Fireman, E
37493: Quant Reasoning I course.						

37491	lecture-discussion	G1	03:00 PM - 03:50 PM	MWF	room 100 Noyes Laboratory	Fireman, E
37491: Quant Reasoning I course.						
39276	lecture-discussion	N1	09:00 AM - 09:50 AM	MWF	room 150 Animal Sciences Laboratory	Martinsek, A; Patterson, J
39276: Quant Reasoning I course.						
37488	lecture-discussion	R1	09:00 AM - 10:20 AM	TR	room 150 Animal Sciences Laboratory	Monrad, D
37488: Quant Reasoning I course.						
37494	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 116 Roger Adams Laboratory	Fireman, E
37494: Quant Reasoning I course.						

181 **A Mathematical World** credit: 3 hours.

Introduction to selected areas of mathematical sciences through application to modeling and solution of problems involving networks, circuits, trees, linear programming, random samples, regression, probability, inference, voting systems, game theory, symmetry and tilings, geometric growth, comparison of algorithms, codes and data management. Prerequisite: Three years of high school mathematics, including two years of algebra and one year of geometry.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

CRN	Type	Section	Time	Days	Location	Instructor
47120	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 443 Altgeld Hall	Kelsey, G
47120: Quant Reasoning I course.						
46843	lecture-discussion	D2	11:00 AM - 11:50 AM	MWF	room 345 Altgeld Hall	Kumbhat, M
46843: Quant Reasoning I course.						
46843: A Mathematical World, 3 hours.						
46844	lecture-discussion	E1	01:00 PM - 01:50 PM	MWF	room 341 Altgeld Hall	Rouse, J
46844: Quant Reasoning I course.						
47119	lecture-discussion	E2	01:00 PM - 02:50 PM	MWF	room 142 Henry Administration Bldg	Yeh, S
47119: Quant Reasoning I course.						

47119: Meets 16-Mar-09 - 06-May-09.						
46845	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 145 Altgeld Hall	Chen, A
46845: Quant Reasoning I course.						
51553	lecture-discussion	L1	08:30 AM - 10:50 AM	TR	room 445 Altgeld Hall	Wahl, K
51553: Quant Reasoning I course.						
51553: Restricted to Transition Program students.Restricted to students in the transition/bridge program.						
46846	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 241 Altgeld Hall	Guillou, B
46846: Quant Reasoning I course.						

199 **Undergraduate Open Seminar** credit: 1 to 5 hours.  
Approved for both letter and S/U grading. May be repeated.

CRN	Type	Section	Time	Days	Location	Instructor
10551	independent study		ARRANGED			
10551: Instructor Approval Required						
46559	lecture-discussion	CHP	11:00 AM - 11:50 AM	MWF	room 243 Altgeld Hall	Ahlgren, S
46559: 3 hoursCamp Honors/Chanc Schol course.Restricted to Chancellors Scholar-CHP Honors students.Special Topic: Numbers. For Chancellor's Scholars only; other may only enroll with the consent of the instructor and the Campus Honors Program.						
49060	lecture-discussion	FTM	03:00 PM - 03:50 PM	W	room 201 1505GR	Sebestik, J
49060: 1 hoursPreparing Future Teachers of Mathematics. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.Restricted to students with Freshman, and Sophomore class standing.						
48356	discussion-recitation	JMM	01:00 PM - 02:50 PM	M	room 159 Altgeld Hall	McNeilly, J; Peterson, V
48356: 1 hoursDepartmental Approval RequiredFor Math 115 Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a>						

210 **Theory of Interest** credit: 3 hours.  
Study of compound interest and annuities; applications to problems in finance. Prerequisite: MATH 231 or equivalent.  
This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37826	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 160 English Bldg	Chen, S
37826: Quant Reasoning II course.						

213 **Basic Discrete Mathematics** credit: 3 hours.

Beginning course on discrete mathematics, including sets and relations, functions, basic counting techniques, recurrence relations, graphs and trees, and matrix algebra; emphasis throughout is on algorithms and their efficacy. Credit is not given for both MATH 213 and CS 173. Prerequisite: MATH 220 or MATH 221, or equivalent. This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37828	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 140 Henry Administration Bldg	Duursma, I
37828: Quant Reasoning II course.						
37828: Restricted to freshmen and sophomores.						
37829	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 149 Henry Administration Bldg	Duursma, I
37829: Quant Reasoning II course.						
37829: Restricted to freshmen and sophomores.						

220 **Calculus** credit: 5 hours.

First course in calculus and analytic geometry; basic techniques of differentiation and integration with applications including curve sketching; antidifferentiation, the Riemann integral, fundamental theorem, exponential and trigonometric functions. Credit is not given for both MATH 220 and either MATH 221 or MATH 234. Prerequisite: MATH 016 or MATH 115; and an adequate ALEKS placement score. This course satisfies the General Education Criteria for a Quant Reasoning I course.

Students must register for one discussion and one lecture section beginning with the same letter. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
37543	laboratory	AB1	03:00 PM - 04:50 PM	T	room 159 Altgeld Hall	Harper, M
37543: Quant Reasoning I course.						
37543: Small group learning lab. Must also sign up for 37542.						
37522	discussion-recitation	AD1	01:00 PM - 01:50 PM	TR	room 143 Altgeld Hall	Rettberg, R

37522: Quant Reasoning I course.						
37524	discussion-recitation	AD2	01:00 PM - 01:50 PM	TR	room 145 Altgeld Hall	Yao, Z
37524: Quant Reasoning I course.						
37526	discussion-recitation	AD3	01:00 PM - 01:50 PM	TR	room 341 Altgeld Hall	Wittrig, A
37526: Quant Reasoning I course.						
37528	discussion-recitation	AD4	01:00 PM - 01:50 PM	TR	room 343 Altgeld Hall	Zimmer, A
37528: Quant Reasoning I course.						
37529	discussion-recitation	AD5	02:00 PM - 02:50 PM	TR	room 143 Altgeld Hall	Rettberg, R
37529: Quant Reasoning I course.						
37531	discussion-recitation	AD6	02:00 PM - 02:50 PM	TR	room 147 Altgeld Hall	Yao, Z
37531: Quant Reasoning I course.						
37533	discussion-recitation	AD7	02:00 PM - 02:50 PM	TR	room 447 Altgeld Hall	Son, S
37533: Quant Reasoning I course.						
37535	discussion-recitation	AD8	11:00 AM - 12:50 PM	MWF	room 173 Altgeld Hall	Chasman, L
37535: Quant Reasoning I course.						
37535: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						
37536	discussion-recitation	AD9	09:00 AM - 10:50 AM	MWF	room 173 Altgeld Hall	Cooney, T
37536: Quant Reasoning I course.						
37536: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						
37542	lecture-discussion	AE1	11:00 AM - 11:50 AM	MTWR	room 143 Altgeld Hall	Harper, M
37542: Quant Reasoning I course.						
37542: Uses small group learning methods. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Must also sign up for 37543.						
37538	lecture	AL1	01:00 PM - 01:50 PM	MWF	room 314 Altgeld Hall	Rosenblatt, J

37538: Quant Reasoning I course.						
37540	laboratory	BB1	03:00 PM - 04:50 PM	M	room 159 Altgeld Hall	Szuta, P
37540: Quant Reasoning I course.						
37540: Small group learning lab. Must also sign up for 37545.						
48792	discussion-recitation	BD1	02:00 PM - 02:50 PM	TR	room 441 Altgeld Hall	Xu, P
48792: Quant Reasoning I course.						
48793	discussion-recitation	BD2	12:00 PM - 12:50 PM	TR	room 443 Altgeld Hall	Xu, P
48793: Quant Reasoning I course.						
48795	discussion-recitation	BD4	11:00 AM - 11:50 AM	TR	room 140 Henry Administration Bldg	Park, H
48795: Quant Reasoning I course.						
48797	discussion-recitation	BD6	01:00 PM - 01:50 PM	TR	room 2 Illini Hall	Lenz, J
48797: Quant Reasoning I course.						
48798	discussion-recitation	BD7	03:00 PM - 03:50 PM	TR	room 143 Altgeld Hall	Darayon, C
48798: Quant Reasoning I course.						
37545	lecture-discussion	BE1	12:00 PM - 12:50 PM	MTWR	Room 143 Altgeld Hall	Szuta, P
37545: Quant Reasoning I course.						
37545: Uses small group learning methods. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Must also sign up for 37540.						
48791	lecture	BL1	03:00 PM - 03:50 PM	MWF	room 314 Altgeld Hall	
48791: Quant Reasoning I course.						
37547	laboratory-discussion	D8	11:00 AM - 11:50 AM	MTWR	Room 24 Illini Hall	Sneed, J
37547: Quant Reasoning I course.						
37547: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
37548	laboratory-discussion	X8	12:00 PM - 12:50 PM	MTWR	Room 24 Illini Hall	Dennison, M

37548: Quant Reasoning I course.

37548: Uses Mathematica courseware. See <http://www.math.uiuc.edu/timetable/> for details.

225 **Introductory Matrix Theory** credit: 2 hours.

Systems of linear equations, matrices and inverses, determinants, and a glimpse at vector spaces, eigenvalues and eigenvectors. Credit is not given for both MATH 225 and any of MATH 125, MATH 410, or MATH 415. Prerequisite: MATH 220 or MATH 221; or equivalent.

Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
37830	lecture-discussion	M1	09:00 AM - 09:50 AM	TR	room 447 Altgeld Hall	Kirr, E
37831	lecture-discussion	N1	10:00 AM - 10:50 AM	TR	room 145 Altgeld Hall	Lebl, J
37832	lecture-discussion	N2	10:00 AM - 10:50 AM	TR	room 147 Altgeld Hall	Fima, P
37833	lecture-discussion	P1	11:00 AM - 11:50 AM	TR	room 142 Henry Administration Bldg	Siudeja, B
37834	lecture-discussion	P2	11:00 AM - 11:50 AM	TR	room 149 Henry Administration Bldg	Fima, P
37835	lecture-discussion	Q1	12:00 PM - 12:50 PM	TR	room 149 Henry Administration Bldg	Hinkkanen, A
37836	lecture-discussion	Q2	12:00 PM - 12:50 PM	TR	room 341 Altgeld Hall	Erdogan, M
37837	lecture-discussion	R1	01:00 PM - 01:50 PM	TR	room 142 Henry Administration Bldg	Lior, D
37838	lecture-discussion	R2	01:00 PM - 01:50 PM	TR	room 447 Altgeld Hall	Ivanov, S
37841	lecture-discussion	S1	02:00 PM - 02:50 PM	TR	room 142 Henry Administration Bldg	Lee, J
37844	laboratory-discussion	S8	02:00 PM - 02:50 PM	TR	room 245 Altgeld Hall	Block, A
37844: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
37842	lecture-discussion	T1	03:00 PM - 03:50 PM	TR	room 142 Henry Administration Bldg	Fima, P

37846	lecture-discussion	T2	03:00 PM - 04:50 PM	TR	room 149 Henry Administration Bldg	Van Halewyck, J
37846: Meets 16-Mar-09 - 06-May-09.						
37845	laboratory-discussion	T8	03:00 PM - 04:50 PM	TR	room 317 Gregory Hall	Bonnell, C
37845: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Meets 16-Mar-09 - 06-May-09.						

231 **Calculus II** credit: 3 hours.

Second course in calculus and analytic geometry: techniques of integration, conic sections, polar coordinates, and infinite series. Credit is not given for both MATH 231 and MATH 230. Prerequisite: MATH 220 or MATH 221.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

Students must register for one discussion and one lecture section beginning with the same letter. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
46017	laboratory	AB1	03:00 PM - 04:50 PM	R	room 159 Altgeld Hall	Tichenor, S
46017: Quant Reasoning I course.						
46017: Uses small group learning methods. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Must also sign up for 46025.						
46018	discussion-recitation	AD1	08:00 AM - 08:50 AM	TR	room 141 Altgeld Hall	Spiegelhalter, P
46018: Quant Reasoning I course.						
46019	discussion-recitation	AD2	09:00 AM - 09:50 AM	TR	room 145 Altgeld Hall	Spiegelhalter, P
46019: Quant Reasoning I course.						
46020	discussion-recitation	AD3	11:00 AM - 11:50 AM	TR	room 145 Altgeld Hall	Polanco Encarnacion, G
46020: Quant Reasoning I course.						
46021	discussion-recitation	AD4	12:00 PM - 12:50 PM	TR	room 147 Altgeld Hall	Song, S
46021: Quant Reasoning I course.						
46022	discussion-recitation	AD5	01:00 PM - 01:50 PM	TR	room 140 Henry Administration Bldg	Song, S
46022: Quant Reasoning I course.						

46023	discussion- recitation	AD6	02:00 PM - 02:50 PM	TR	room 145 Altgeld Hall	To, J
46023: Quant Reasoning I course.						
47542	discussion- recitation	AD7	10:00 AM - 10:50 AM	TR	room 347 Altgeld Hall	Polanco Encarnacion, G
47542: Quant Reasoning I course.						
46025	lecture- discussion	AE1	11:00 AM - 11:50 AM	MWF	room 140 Henry Administration Bldg	Tichenor, S
46025: Quant Reasoning I course.						
46025: Uses small group learning methods. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Must also sign up for 46017.						
46026	lecture	AL1	12:00 PM - 12:50 PM	MW	room 100 Gregory Hall	Bergvelt, M
46026: Quant Reasoning I course.						
46028	laboratory- discussion	B8	09:00 AM - 09:50 AM	MWF	room 241 Altgeld Hall	Seceleanu, A
46028: Quant Reasoning I course.						
46028: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
46030	laboratory	BB1	03:00 PM - 04:50 PM	W	room 159 Altgeld Hall	Wiman, L
46030: Quant Reasoning I course.						
46030: Uses small group learning methods. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Must also sign up for 46031.						
46032	discussion- recitation	BD1	08:00 AM - 08:50 AM	TR	room 143 Altgeld Hall	Fricano, A
46032: Quant Reasoning I course.						
46033	discussion- recitation	BD2	09:00 AM - 09:50 AM	TR	room 143 Altgeld Hall	Prugsapitak, S
46033: Quant Reasoning I course.						
46034	discussion- recitation	BD3	11:00 AM - 11:50 AM	TR	room 147 Altgeld Hall	Prugsapitak, S
46034: Quant Reasoning I course.						
46035	discussion- recitation	BD4	12:00 PM - 12:50 PM	TR	room 343 Altgeld Hall	Kim, E
46035: Quant Reasoning I course.						

46036	discussion-recitation	BD5	01:00 PM - 01:50 PM	TR	room 147 Altgeld Hall	Rochford, A
46036: Quant Reasoning I course.						
46037	discussion-recitation	BD6	03:00 PM - 03:50 PM	TR	room 141 Altgeld Hall	Kim, E
46037: Quant Reasoning I course.						
46031	lecture-discussion	BE1	12:00 PM - 12:50 PM	MWF	room 140 Henry Administration Bldg	Wiman, L
46031: Quant Reasoning I course.						
46031: Uses small group learning methods. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Must also sign up for 46030.						
46038	lecture	BL1	01:00 PM - 01:50 PM	MW	room 1320 Digital Computer Laboratory	Schultz, A
46038: Quant Reasoning I course.						
46040	discussion-recitation	CD1	09:00 AM - 09:50 AM	TR	room 147 Altgeld Hall	Dixit, A
46040: Quant Reasoning I course.						
46041	discussion-recitation	CD2	10:00 AM - 10:50 AM	TR	room 143 Altgeld Hall	Dixit, A
46041: Quant Reasoning I course.						
46042	discussion-recitation	CD3	12:00 PM - 12:50 PM	TR	room 140 Henry Administration Bldg	Ray, B
46042: Quant Reasoning I course.						
46043	discussion-recitation	CD4	02:00 PM - 02:50 PM	TR	room 140 Henry Administration Bldg	Ray, B
46043: Quant Reasoning I course.						
46044	discussion-recitation	CD5	09:00 AM - 10:50 AM	TR	room 173 Altgeld Hall	Cummins, D
46044: Quant Reasoning I course.						
46044: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						
46045	discussion-recitation	CD6	01:00 PM - 02:50 PM	TR	room 173 Altgeld Hall	Morton, D

46045: Quant Reasoning I course.						
46045: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						
46046	lecture	CL1	03:00 PM - 03:50 PM	MW	room 66 Library - Main	Ford, K
46046: Quant Reasoning I course.						
46047	lecture-discussion	D1H	11:00 AM - 11:50 AM	MWF	room 145 Altgeld Hall	Rosenblatt, J
46047: Quant Reasoning I course.						
46047: Departmental Approval Required Requires concurrent registration in Math 249 P1H. This is an Honors course. Not intended for Graduate - Urbana-Champaign.						
46048	laboratory	D8	11:00 AM - 11:50 AM	MWF	room 241 Altgeld Hall	Zaki, M
46048: Quant Reasoning I course.						
46048: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
48401	lecture-discussion	E1H	01:00 PM - 01:50 PM	MWF	room 243 Altgeld Hall	Mei, T
48401: Quant Reasoning I course.						
48401: Departmental Approval Required Requires concurrent registration in Math 249 Q1H. This is an Honors course. Not intended for Graduate - Urbana-Champaign.						
51776	discussion-recitation	ED1	02:00 PM - 02:50 PM	TR	room 443 Altgeld Hall	Ozkahya, L; Gadre, V
51776: Quant Reasoning I course.						
51777	discussion-recitation	ED2	03:00 PM - 03:50 PM	TR	room 147 Altgeld Hall	Son, S
51777: Quant Reasoning I course.						
51778	discussion-recitation	ED3	04:00 PM - 04:50 PM	TR	room 141 Altgeld Hall	Gadre, V
51778: Quant Reasoning I course.						
51847	discussion-recitation	ED4	09:00 AM - 09:50 AM	TR	room 143 Henry Administration Bldg	Butterfield, J
51847: Quant Reasoning I course.						
51848	discussion-recitation	ED5	12:00 PM - 12:50 PM	TR	room 142 Henry Administration Bldg	Gadre, V

51848: Quant Reasoning I course.						
51992	discussion-recitation	ED6	03:00 PM - 03:50 PM	TR	room 203 Noyes Laboratory	Hall, J
51992: Quant Reasoning I course.						
51993	discussion-recitation	ED7	04:00 PM - 04:50 PM	TR	room 145 Altgeld Hall	Hall, J
51993: Quant Reasoning I course.						
51775	lecture	EL1	04:00 PM - 04:50 PM	MW	room 314 Altgeld Hall	Zharnitsky, V
51775: Quant Reasoning I course.						
46049	lecture-discussion	U1	10:00 AM - 10:50 AM	MWF	room 40 Allen Residence Hall	Carlisle, S
46049: Quant Reasoning I course.						
46049: For Students in University Residence Hall Living-Learning Communities.						
46050	lecture-discussion	W1	01:00 PM - 02:50 PM	MWF	room 173 Altgeld Hall	Thiel, J
46050: Quant Reasoning I course.						
46050: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						
46051	lecture-discussion	W2	09:00 AM - 10:50 AM	MWF	room 159 Altgeld Hall	Fryer, D
46051: Quant Reasoning I course.						
46051: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						
46052	lecture-discussion	W3	11:00 AM - 12:50 PM	MWF	room 159 Altgeld Hall	Barrus, M
46052: Quant Reasoning I course.						
46052: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						

234 **Calculus for Business I** credit: 4 hours.

Introduction to the concept of functions and the basic ideas of the calculus. Credit is not given for both MATH 234 and either MATH 220 or MATH 221. Prerequisite: MATH 012 and an adequate ALEKS score.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

Students must register for one discussion and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
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37794	discussion-recitation	AD1	09:00 AM - 09:50 AM	TR	room 241 Altgeld Hall	Cho, W
37794: Quant Reasoning I course.						
37795	discussion-recitation	AD2	09:00 AM - 09:50 AM	TR	room 148 Henry Administration Bldg	Milans, K
37795: Quant Reasoning I course.						
37796	discussion-recitation	AD3	10:00 AM - 10:50 AM	TR	room 433 Armory	Kinnersley, W
37796: Quant Reasoning I course.						
37797	discussion-recitation	AD4	10:00 AM - 10:50 AM	TR	room 243 Altgeld Hall	Milans, K
37797: Quant Reasoning I course.						
37798	discussion-recitation	AD5	11:00 AM - 11:50 AM	TR	room 143 Henry Administration Bldg	Jao, F
37798: Quant Reasoning I course.						
37805	discussion-recitation	AD6	02:00 PM - 02:50 PM	TR	room 343 Altgeld Hall	Jao, F
37805: Quant Reasoning I course.						
37806	discussion-recitation	AD7	03:00 PM - 03:50 PM	TR	room 145 Altgeld Hall	Kinnersley, W
37806: Quant Reasoning I course.						
37791	lecture	AL1	11:00 AM - 11:50 AM	MW	room 314 Altgeld Hall	Schenck, H
37791: Quant Reasoning I course.						
37799	discussion-recitation	BD1	10:00 AM - 10:50 AM	TR	room 345 Altgeld Hall	Anders, K
37799: Quant Reasoning I course.						
37801	discussion-recitation	BD3	01:00 PM - 01:50 PM	TR	room 148 Henry Administration Bldg	Rios, F
37801: Quant Reasoning I course.						
37802	discussion-recitation	BD4	01:00 PM - 01:50 PM	TR	room 149 Henry Administration Bldg	Weber, J
37802: Quant Reasoning I course.						

37803	discussion-recitation	BD5	02:00 PM - 02:50 PM	TR	room 148 Henry Administration Bldg	Rios, F
37803: Quant Reasoning I course.						
37804	discussion-recitation	BD6	02:00 PM - 02:50 PM	TR	room 341 Altgeld Hall	Weber, J
37804: Quant Reasoning I course.						
37792	lecture	BL1	03:00 PM - 03:50 PM	MW	room 180 Bevier Hall	Schenck, H
37792: Quant Reasoning I course.						

241 **Calculus III** credit: 4 hours.

Third course in calculus and analytic geometry including vector analysis: Euclidean space, partial differentiation, multiple integrals, line integrals and surface integrals, the integral theorems of vector calculus. Credit is not given for both MATH 241 and any of MATH 244, MATH 292, or MATH 380. Prerequisite: MATH 231.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

Students must register for one discussion and one lecture section beginning with the same letter. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
46053	discussion-recitation	AD1	08:00 AM - 08:50 AM	TR	room 145 Altgeld Hall	Eckhardt, C
46053: Quant Reasoning II course.						
46054	discussion-recitation	AD2	09:00 AM - 09:50 AM	TR	room 243 Altgeld Hall	Slutskyy, K
46054: Quant Reasoning II course.						
46055	discussion-recitation	AD3	09:00 AM - 09:50 AM	TR	room 40 Allen Residence Hall	Reuter, V
46055: Quant Reasoning II course.						
46055: For Students in University Residence Hall Living-Learning Communities.						
46056	discussion-recitation	AD4	12:00 PM - 12:50 PM	TR	room 447 Altgeld Hall	Reuter, V
46056: Quant Reasoning II course.						
46057	discussion-recitation	AD5	01:00 PM - 01:50 PM	TR	room 443 Altgeld Hall	Ci, Y
46057: Quant Reasoning II course.						

46058	discussion-recitation	AD6	02:00 PM - 02:50 PM	TR	room 143 Henry Administration Bldg	Yuttanan, B
46058: Quant Reasoning II course.						
46059	discussion-recitation	AD7	11:00 AM - 12:50 PM	TR	room 159 Altgeld Hall	Im, M
46059: Quant Reasoning II course.						
46059: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> .						
48355	discussion-recitation	AD8	01:00 PM - 01:50 PM	TR	room 170 Everitt Elec and Comp Engr Lab	Benson, B
48355: Quant Reasoning II course.						
46060	lecture	AL1	09:00 AM - 09:50 AM	MWF	room 314 Altgeld Hall	Carty, T
46060: Quant Reasoning II course.						
46061	discussion-recitation	BD1	08:00 AM - 08:50 AM	TR	room 147 Altgeld Hall	O, S
46061: Quant Reasoning II course.						
46062	discussion-recitation	BD2	09:00 AM - 09:50 AM	TR	room 347 Altgeld Hall	O, S
46062: Quant Reasoning II course.						
46063	discussion-recitation	BD3	10:00 AM - 10:50 AM	TR	room 443 Altgeld Hall	Mizrak, O
46063: Quant Reasoning II course.						
46064	discussion-recitation	BD4	10:00 AM - 10:50 AM	TR	room 140 Henry Administration Bldg	Wu, H
46064: Quant Reasoning II course.						
46065	discussion-recitation	BD5	12:00 PM - 12:50 PM	TR	room 143 Henry Administration Bldg	Wu, H
46065: Quant Reasoning II course.						
46066	discussion-recitation	BD6	03:00 PM - 03:50 PM	TR	room 143 Henry Administration Bldg	Mizrak, O
46066: Quant Reasoning II course.						

46067	lecture	BL1	10:00 AM - 10:50 AM	MWF	room 134 Temple Hoyne Buell Hall	Tumanov, A
46067: Quant Reasoning II course.						
46068	lecture-discussion	C1H	10:00 AM - 10:50 AM	MTWR	room 241 Altgeld Hall	Sabitova, M
46068: Quant Reasoning II course.						
46068: Departmental Approval Required This is an Honors course. Not intended for Graduate - Urbana-Champaign.						
46075	lecture-discussion	C8	10:00 AM - 10:50 AM	MTWR	room 142 Henry Administration Bldg	Appuhn, C
46075: Quant Reasoning II course.						
46075: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
46069	discussion-recitation	CD1	09:00 AM - 09:50 AM	TR	room 142 Henry Administration Bldg	Grundmeier, D
46069: Quant Reasoning II course.						
46070	discussion-recitation	CD2	12:00 PM - 12:50 PM	TR	room 148 Henry Administration Bldg	Koh, N
46070: Quant Reasoning II course.						
46071	discussion-recitation	CD3	01:00 PM - 01:50 PM	TR	room 143 Henry Administration Bldg	Koh, N
46071: Quant Reasoning II course.						
46072	discussion-recitation	CD4	02:00 PM - 02:50 PM	TR	room 141 Altgeld Hall	Liu, C
46072: Quant Reasoning II course.						
46073	discussion-recitation	CD5	03:00 PM - 03:50 PM	TR	room 148 Henry Administration Bldg	Li, X
46073: Quant Reasoning II course.						
47543	discussion-recitation	CD6	03:00 PM - 03:50 PM	TR	room 343 Altgeld Hall	Tran, K
47543: Quant Reasoning II course.						
50318	discussion-recitation	CD7	08:00 AM - 08:50 AM	TR	room 343 Altgeld Hall	Grundmeier, D

50318: Quant Reasoning II course.						
50322	discussion-recitation	CD8	02:00 PM - 02:50 PM	TR	room 149 Henry Administration Bldg	Tran, K
50322: Quant Reasoning II course.						
46074	lecture	CL1	02:00 PM - 02:50 PM	MWF	room 314 Altgeld Hall	Carty, T
46074: Quant Reasoning II course.						
47216	lecture-discussion	F1H	02:00 PM - 02:50 PM	MTWR	room 330 Armory	Erdogan, M
47216: Quant Reasoning II course.						
47216: Departmental Approval Required This is an Honors course. Not intended for Graduate - Urbana-Champaign.						
46076	lecture-discussion	X8	12:00 PM - 12:50 PM	MTWR	room 2 Illini Hall	Avsec, S
46076: Quant Reasoning II course.						
46076: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						

249 **Honors Supplement** credit: 1 hours.

Supplemental credit hour for honors courses with additional material or special projects. Prerequisite: Concurrent registration in a specially designated honors section and consent of department.

CRN	Type	Section	Time	Days	Location	Instructor
37808	lecture-discussion	P1H	ARRANGED			Rosenblatt, J
37808: Departmental Approval Required						
37808: Requires concurrent registration in Math 231 D1H.						
48402	lecture-discussion	Q1H	ARRANGED			Mei, T
48402: Departmental Approval Required						
48402: Requires concurrent registration in Math 231 E1H.						

285 **Intro Differential Equations** credit: 3 hours.

Techniques and applications of ordinary differential equations, including Fourier series and boundary value problems, and an introduction to partial differential equations. Intended for engineering majors and others who require a working knowledge of differential equations. Credit is not given for both MATH 285 and any of MATH 284, MATH 286, MATH 441. Prerequisite: MATH 241.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
48595	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 245 Altgeld Hall	Berndt, B
48596	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 156 Henry Administration Bldg	Hundertmark, D
48597	lecture-discussion	D1	11:00 AM - 11:50 AM	MWF	room 156 Henry Administration Bldg	Manfroi, A
48602	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 245 Altgeld Hall	Manfroi, A
48605	laboratory-discussion	F8	02:00 PM - 02:50 PM	MWF	room 241 Altgeld Hall	Kutzarova, D
48605: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
48604	lecture-discussion	G1	03:00 PM - 03:50 PM	MWF	room 245 Altgeld Hall	DeVilleville, R
48606	laboratory-discussion	G8	03:00 PM - 03:50 PM	MWF	room 239 Altgeld Hall	Kutzarova, D
48606: Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
48600	lecture-discussion	N1	10:30 AM - 11:50 AM	TR	room 156 Henry Administration Bldg	Li, X
48599	lecture-discussion	Q1	12:00 PM - 01:20 PM	TR	room 245 Altgeld Hall	Ash, C
48598	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 245 Altgeld Hall	Manfroi, A

**286 *Intro to Differential Eq Plus*** credit: 4 hours.

Techniques and applications of ordinary differential equations, including Fourier series and boundary value problems, linear systems of differential equations, and an introduction to partial differential equations. Covers all the MATH 285 plus linear systems. Intended for engineering majors and other who require a working knowledge of differential equations. Credit is not given for both MATH 286 and any of MATH 284, MATH 285, MATH 441.

Prerequisite: MATH 241.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
48607	lecture-discussion	E1	01:00 PM - 01:50 PM	MTWR	room 103 Transportation Bldg	Siudeja, B

48952	laboratory-discussion	E8	01:00 PM - 01:50 PM	MTWR	room 24 Illini Hall	Carpenter, B
48952: Quant Reasoning II course.Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details.						
48608	lecture-discussion	X1	12:00 PM - 12:50 PM	MTWR	room 156 Henry Administration Bldg	Lebl, J

290 **Symbolic Computation Lab** credit: 1 hours.

Laboratory component to courses using a symbolic programming package. Prerequisite: Consent of department; concurrent registration in a designated section of a mathematics course with symbolic computation component. May be taken only once for credit.

CRN	Type	Section	Time	Days	Location	Instructor
37812	laboratory-discussion	P	ARRANGED			Sneed, J; Dennison, M
37812: Departmental Approval Required						
37812: Students from Math 220 Mathematica sections may enroll in this section.						
37814	laboratory-discussion	Q	ARRANGED			Zaki, M; Seceleanu, A
37814: Departmental Approval Required						
37814: Students from Math 231 Mathematica sections may enroll in this section.						
49299	laboratory-discussion	R	ARRANGED			Carpenter, B
49299: Departmental Approval Required						
49299: Students from Math 286 Mathematica sections may enroll in this section.						
37815	laboratory-discussion	S	ARRANGED			Appuhn, C; Avsec, S
37815: Departmental Approval Required						
37815: Students from Math 241 Mathematica sections may enroll in this section.						
44532	laboratory-discussion	T	ARRANGED			
44532: Departmental Approval Required						
44532: Students from Math 380 Mathematica sections may enroll in this section.						
37816	laboratory-discussion	U	ARRANGED			Kutzarova, D

37816: Departmental Approval Required						
37816: Students from Math 285 Mathematica sections may enroll in this section.						
37817	laboratory-discussion	V	ARRANGED			Block, A; Bonnell, C
37817: Departmental Approval Required						
37817: Students from Math 225 Mathematica sections may enroll in this section.						
37818	laboratory-discussion	W	ARRANGED			Kedem, R
37818: Departmental Approval Required						
37818: Students from Math 415 Mathematica sections may enroll in this section.						
37819	laboratory-discussion	X	ARRANGED			Carpenter, B
37819: Departmental Approval Required						
37819: Students from Math 461 Mathematica sections may enroll in this section.						
52189	laboratory-discussion	Y	ARRANGED			Woods, D; Carpenter, B
52189: Departmental Approval Required						
52189: Students from Math 415 Z83 & Z84 Mathematica sections may enroll in this section.						

347 **Fundamental Mathematics** credit: 3 hours.

Fundamental ideas used in many areas of mathematics. Topics will include: techniques of proof, mathematical induction, binomial coefficients, rational and irrational numbers, the least upper bound axiom for real numbers, and a rigorous treatment of convergence of sequences and series. This will be supplemented by the instructor from topics available in the various texts. Students will regularly write proofs emphasizing precise reasoning and clear exposition. Credit is not given for both MATH 347 and MATH 348. Prerequisite: MATH 231.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37894	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 143 Henry Administration Bldg	Laugesen, R
37894: Quant Reasoning II course.						
37895	lecture-discussion	D1	11:00 AM - 11:50 AM	MWF	room 143 Henry Administration Bldg	Laugesen, R
37895: Quant Reasoning II course.						

37896	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 341 Altgeld Hall	Ruan, Z
37896: Quant Reasoning II course.						
37898	lecture-discussion	G1	03:00 PM - 03:50 PM	MWF	room 149 Henry Administration Bldg	Rezk, C
37898: Quant Reasoning II course.						
37893	lecture-discussion	X1H	12:00 PM - 12:50 PM	MWF	room 341 Altgeld Hall	Ford, K
37893: Quant Reasoning II course.						
37893: Departmental Approval Required Requires department approval. Not intended for Graduate - Urbana-Champaign.						

348 **Fundamental Mathematics-ACP** credit: 4 hours.

Course is identical to MATH 347 except for the additional writing component. Credit is not given for both MATH 348 and MATH 347. Prerequisite: MATH 231 and completion of the campus Composition I general education requirement.

This course satisfies the General Education Criteria for a Advanced Composition, and Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37899	lecture-discussion	B1	09:00 AM - 09:50 AM	MTWR	room 443 Altgeld Hall	Merenkov, S
37899: Advanced Composition, and Quant Reasoning II course.						

357 **Numerical Methods I** credit: 3 hours.

Same as CS 357. See CS 357.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
50107	lecture-discussion	M	09:30 AM - 10:45 AM	TR	room 1404 Siebel Center for Comp Sci	Gropp, W
50107: Quant Reasoning II course.						
50107: 3 hours						

362 **Probability with Engrg Applic** credit: 3 hours.

Same as ECE 313. See ECE 313.

CRN	Type	Section	Time	Days	Location	Instructor
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51438	discussion-recitation	C	10:00 AM - 10:50 AM	MWF	room 106B1 Engineering Hall	Sarwate, D
51438: 3 hours						
51439	discussion-recitation	D	11:00 AM - 11:50 AM	MWF	room 163 Everitt Elec and Comp Engr Lab	Hutchinson, S
51439: 3 hours						
51440	discussion-recitation	E	01:00 PM - 01:50 PM	MWF	room 163 Everitt Elec and Comp Engr Lab	Hajek, B
51440: 3 hours						

370 **Actuarial Problem Solving** credit: 1 hours.

Methods and techniques of solving problems in actuarial mathematics for advanced students intending to enter the actuarial profession. Approved for S/U grading only. May be repeated in the same or subsequent semesters to a maximum of 4 hours. Prerequisite: Consent of instructor.

Students planning to sit for the "Course 1" Actuarial exam should register for section X. This will carry a 1 hour credit only.

CRN	Type	Section	Time	Days	Location	Instructor
37902	conference	X	07:00 PM - 08:50 PM	M	room 245 Altgeld Hall	Yang, S
37902: For students who will take Course 1 of the National Actuarial Exam. 1 hour credit only.						
37903	conference	Y	ARRANGED			
37903: Instructor Approval Required Instructor approval required.						
37904	conference	Z	07:00 PM - 08:50 PM	T	room 245 Altgeld Hall	Yang, S
37904: For students who will take Course 2 of the National Actuarial Exam. 1 hour credit only.						

380 **Advanced Calculus** credit: 3 hours.

Introductory study of vector calculus and functions of several variables; topics include directional derivatives; Jacobians; change of variables in multiple integrals; maxima and minima; line and surface integrals; theorems of Gauss, Green, and Stokes; infinite series; and uniform convergence. Credit is not given for both MATH 380 and MATH 241. Prerequisite: MATH 242.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37910	laboratory-discussion	Z8	ARRANGED			

37910: Quant Reasoning II course. Departmental Approval Required

37910: Section Z8 will be taught asynchronously using Mathematica courseware. See <http://www.math.uiuc.edu/timetable/> for further details.

390 **Individual Study** credit: 0 to 3 hours.

Guided individual study of advanced topics not covered in other courses. May be repeated to a maximum of 8 hours. Approved for both letter and S/U grading. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10553	independent study		ARRANGED			
10553: Instructor Approval Required						
10553: Instructor approval required.						

402 **Non Euclidean Geometry** credit: 3 or 4 hours.

Historical development of geometry; includes tacit assumptions made by Euclid; the discovery of non-Euclidean geometries; geometry as a mathematical structure; and an axiomatic development of plane geometry. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 241; MATH 347 or MATH 348, or equivalent; or consent of instructor. This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37927	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 147 Altgeld Hall	Malkin, A
37927: Quant Reasoning II course.						
37927: 3 hours Open to both undergraduate and graduate students.						
37928	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 147 Altgeld Hall	Malkin, A
37928: Quant Reasoning II course.						
37928: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
37929	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 147 Altgeld Hall	Malkin, A
37929: Quant Reasoning II course.						
37929: 3 hours Open to both undergraduate and graduate students.						
37931	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 147 Altgeld Hall	Malkin, A

37931: Quant Reasoning II course.

37931: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.

403 **Euclidean Geometry** credit: 3 or 4 hours.

Selected topics from geometry, including the nine-point circle, theorems of Ceva and Menelaus, regular figures, isometries in the plane, ordered and affine geometries, and the inversive plane. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 241; MATH 347 or 348, or equivalent; or consent of instructor.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37932	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 243 Altgeld Hall	Csima, N
37932: Quant Reasoning II course.						
37932: 3 hours Open to both undergraduate and graduate students.						
37934	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 243 Altgeld Hall	Csima, N
37934: Quant Reasoning II course.						
37934: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

405 **Teacher's Course** credit: 3 or 4 hours.

In-depth, advanced perspective look at selected topics covered in the secondary curriculum. Connects mathematics learned at the university level to content introduced at the secondary level. Intended for students who plan to seek a secondary certificate in mathematics teaching. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 241; MATH 347 or MATH 348, or equivalent; or consent of instructor.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37935	lecture-discussion	B13	08:30 AM - 09:45 AM	MF	room 201 1505GR	Smith, K
37935: Quant Reasoning II course.						
37935: 3 hours Open to both undergraduate and graduate students.						
37936	lecture-discussion	B14	08:30 AM - 09:45 AM	MF	room 201 1505GR	Smith, K
37936: Quant Reasoning II course.						

37936: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.

408 **Actuarial Statistics I** credit: 4 hours.  
Same as STAT 408. See STAT 408.

CRN	Type	Section	Time	Days	Location	Instructor
36113	discussion-recitation	AD1	03:00 PM - 03:50 PM	T	room 134 Armory	Heitz, A
36119	discussion-recitation	AD2	04:00 PM - 04:50 PM	T	room 134 Armory	Heitz, A
50229	discussion-recitation	AD3	02:00 PM - 02:50 PM	T	room 134 Armory	Heitz, A
36123	lecture	AL1	09:00 AM - 09:50 AM	MWF	room 124 Burrill Hall	Stepanov, A

410 **Lin Algebra & Financial Apps** credit: 3 or 4 hours.

Emphasizes techniques of linear algebra and introductory and advanced applications to actuarial science, finance and economics. Topics include linear equations, matrix theory, vector spaces, linear transformations, eigenvalues and eigenvectors and inner product spaces. In addition, current research topics such as modeling, data mining, and generalized linear models are explored. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Credit is not given for both MATH 410 and MATH 125, MATH 225, or MATH 415. Prerequisite: MATH 241; MATH 210 or FIN 221; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
50884	lecture-discussion	N13	10:30 AM - 11:50 AM	TR	room 150 Animal Sciences Laboratory	Nevins, T
50884: 3 hours Restricted to Actuarial Science majors.						
50885	lecture-discussion	N14	10:30 AM - 11:50 AM	TR	room 150 Animal Sciences Laboratory	Nevins, T
50885: 4 hours Departmental Approval Required Restricted to Actuarial Science majors.						

412 **Graph Theory** credit: 3 or 4 hours.

Examines basic concepts and applications of graph theory, where graph refers to a set of vertices and edges that join some pairs of vertices; topics include subgraphs, connectivity, trees, cycles, vertex and edge coloring, planar graphs and their colorings. Draws applications from computer science, operations research, chemistry, the social sciences, and other branches of mathematics, but emphasis is placed on theoretical aspects of graphs. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 347 or MATH 348 or equivalent experience or CS 373. This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37937	lecture-discussion	X13	12:00 PM - 12:50 PM	MWF	room 243 Altgeld Hall	Kostochka, A
37937: Quant Reasoning II course.						
37937: 3 hoursOpen to both undergraduate and graduate students.						
37939	lecture-discussion	X14	12:00 PM - 12:50 PM	MWF	room 243 Altgeld Hall	Kostochka, A
37939: Quant Reasoning II course.						
37939: 4 hoursInstructor Approval RequiredInstructor approval forms available in 313 Altgeld Hall.Not intended for Undergrad - Urbana-Champaign.						

413 **Intro to Combinatorics** credit: 3 or 4 hours.

Permutations and combinations, generating functions, recurrence relations, inclusion and exclusion, Polya's theory of counting, and block designs. Same as CS 413. 3 undergraduate hours. 3 or 4 graduate hours. 4 hours of credit requires approval of the instructor and completion of additional work of substance. Prerequisite: MATH 347 or MATH 348 or equivalent experience.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37943	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 148 Henry Administration Bldg	Balog, J
37943: Quant Reasoning II course.						
37943: 3 hoursOpen to both undergraduate and graduate students.						
38722	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 148 Henry Administration Bldg	Balog, J
38722: Quant Reasoning II course.						
38722: 4 hoursInstructor Approval RequiredInstructor approval forms available in 221 Altgeld Hall beginning January 13, 2005.Not intended for Undergrad - Urbana-Champaign.						

415 **Applied Linear Algebra** credit: 3 or 4 hours.

Introductory course emphasizing techniques of linear algebra with applications to engineering; topics include matrix operations, determinants, linear equations, vector spaces, linear transformations, eigenvalues, and eigenvectors, inner products and norms, orthogonality, equilibrium, and linear dynamical systems. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Credit is not given for both MATH 415 and any of MATH 125, MATH 225, or MATH 410. Prerequisite: MATH 241 or consent of instructor. This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
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37957	lecture-discussion	A13	08:00 AM - 08:50 AM	MWF	room 245 Altgeld Hall	Bergvelt, M
37957: Quant Reasoning II course.						
37957: 3 hoursOpen to both undergraduate and graduate students.						
37960	lecture-discussion	A14	08:00 AM - 08:50 AM	MWF	room 245 Altgeld Hall	Bergvelt, M
37960: Quant Reasoning II course.						
37960: 4 hoursInstructor Approval RequiredInstructor approval forms available in 313 Altgeld Hall.Not intended for Undergrad - Urbana-Champaign.						
37962	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 156 Henry Administration Bldg	Mackay, J
37962: Quant Reasoning II course.						
37962: 3 hoursOpen to both undergraduate and graduate students.						
37965	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 156 Henry Administration Bldg	Mackay, J
37965: Quant Reasoning II course.						
37965: 4 hoursInstructor Approval RequiredInstructor approval forms available in 313 Altgeld Hall.Not intended for Undergrad - Urbana-Champaign.						
37967	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 245 Altgeld Hall	Csima, N
37967: Quant Reasoning II course.						
37967: 3 hoursOpen to both undergraduate and graduate students.						
37970	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 245 Altgeld Hall	Csima, N
37970: Quant Reasoning II course.						
37970: 4 hoursInstructor Approval RequiredInstructor approval forms available in 313 Altgeld Hall.Not intended for Undergrad - Urbana-Champaign.						
37984	lecture-discussion	E83	01:00 PM - 01:50 PM	MWF	room 245 Altgeld Hall	Kedem, R
37984: Quant Reasoning II course.						
37984: 3 hoursUses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Open to both undergraduate and graduate students.						
37986	lecture-discussion	E84	01:00 PM - 01:50 PM	MWF	room 245 Altgeld Hall	Kedem, R

37986: Quant Reasoning II course.						
37986: 4 hours Instructor Approval Required Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
37980	lecture-discussion	F13	02:00 PM - 02:50 PM	MWF	room 156 Henry Administration Bldg	Kedem, R
37980: Quant Reasoning II course.						
37980: 3 hours Open to both undergraduate and graduate students.						
37983	lecture-discussion	F14	02:00 PM - 02:50 PM	MWF	room 156 Henry Administration Bldg	Kedem, R
37983: Quant Reasoning II course.						
37983: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
37972	lecture-discussion	M13	09:00 AM - 10:20 AM	TR	room 245 Altgeld Hall	Haboush, W
37972: Quant Reasoning II course.						
37972: 3 hours Open to both undergraduate and graduate students.						
37974	lecture-discussion	M14	09:00 AM - 10:20 AM	TR	room 245 Altgeld Hall	Haboush, W
37974: Quant Reasoning II course.						
37974: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
37976	lecture-discussion	N13	10:30 AM - 11:50 AM	TR	room 245 Altgeld Hall	Haboush, W
37976: Quant Reasoning II course.						
37976: 3 hours Open to both undergraduate and graduate students.						
37979	lecture-discussion	N14	10:30 AM - 11:50 AM	TR	room 245 Altgeld Hall	Haboush, W
37979: Quant Reasoning II course.						
37979: 4 hours Instructor Approval Required Instructor approval forms available in 221 Altgeld Hall beginning January 13, 2005. Not intended for Undergrad - Urbana-Champaign.						
37991	laboratory-discussion	Z83	ARRANGED			Woods, D; Carpenter, B
37991: Quant Reasoning II course.						

37991: 3 hours Section Z8 will be taught asynchronously using Mathematica courseware. See <http://www.math.uiuc.edu/timetable/> for further details. Open to both undergraduate and graduate students.

37988	laboratory-discussion	Z84	ARRANGED			Woods, D; Carpenter, B
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37988: Quant Reasoning II course.

37988: 4 hours Instructor Approval Required Section Z8 will be taught asynchronously using Mathematica courseware. See <http://www.math.uiuc.edu/timetable/> for further details. Not intended for Undergrad - Urbana-Champaign.

416 **Abstract Linear Algebra** credit: 3 or 4 hours.

Rigorous proof-oriented course in linear algebra. Topics include determinants, vector spaces over fields, linear transformations, inner product spaces, eigenvectors and eigenvalues, Hermitian matrices, Jordan Normal Form. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 241 or consent of instructor; MATH 347 is recommended.

CRN	Type	Section	Time	Days	Location	Instructor
49998	lecture-discussion	EH3	01:00 PM - 01:50 PM	MWF	room 343 Altgeld Hall	Ando, M
49998: 3 hours						
50000	lecture-discussion	EH4	01:00 PM - 01:50 PM	MWF	room 343 Altgeld Hall	Ando, M
50000: 3 hours						

417 **Intro to Abstract Algebra** credit: 3 or 4 hours.

Fundamental theorem of arithmetic, congruences. Permutations. Groups and subgroups, homomorphisms. Group actions with applications. Polynomials. Rings, subrings, and ideals. Integral domains and fields. Roots of polynomials. Maximal ideals, construction of fields. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: Either MATH 416 or one of MATH 410, MATH 415 together with one of MATH 347, MATH 348, CS 373; or consent of instructor. This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
37997	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 445 Altgeld Hall	Kapovitch, I
37997: Quant Reasoning II course.						
37997: 3 hours Open to both undergraduate and graduate students.						
37999	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 445 Altgeld Hall	Kapovitch, I
37999: Quant Reasoning II course.						

37999: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.

418 **Intro to Abstract Algebra II** credit: 3 or 4 hours.

Rings of quotients of an integral domain. Euclidean domains, principal ideal domains. Unique factorization in polynomial rings. Fields extensions, ruler and compass constructions. Finite fields with applications. Modules. Structure theorem for finitely generated modules over principal ideal domains. Application to finitely generated abelian groups and canonical forms of matrices. Introduction to error-correcting codes. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 417 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
39475	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 140 Henry Administration Bldg	Mineyev, I
39475: 3 hours Open to both undergraduate and graduate students.						
39476	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 140 Henry Administration Bldg	Mineyev, I
39476: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

425 **Honors Advanced Analysis** credit: 3 hours.

A theoretical treatment of differential and integral calculus in higher dimensions. Topics include inverse and implicit function theorems, submanifolds, the theorems of Green, Gauss and Stokes, differential forms, and applications. As part of the honors sequence, this course will be rigorous and abstract. Approved for honors grading. 3 undergraduate hours. Prerequisite: MATH 424 and either MATH 415 or MATH 416, and consent of the department.

CRN	Type	Section	Time	Days	Location	Instructor
46016	lecture-discussion	A	12:00 PM - 12:50 PM	MWF	room 443 Altgeld Hall	Leininger, C
46016: Departmental Approval Required						

428 **Honors Topics in Mathematics** credit: 3 hours.

A capstone course in the Mathematics Honors Sequences. Topics will vary. As part of the honors sequence, this course will be rigorous and abstract. Approved for honors grading. 3 undergraduate hours. May be repeated in the same or separate terms to a maximum of 12 hours. Prerequisite: Consent of the department.

CRN	Type	Section	Time	Days	Location	Instructor
48286	lecture-discussion	G	10:00 AM - 10:50 AM	MWF	room 145 Altgeld Hall	Ahlgren, S

48286: Departmental Approval Required

432 **Set Theory and Topology** credit: 3 or 4 hours.

Informal set theory, cardinal and ordinal numbers, and the axiom of choice; topology of metric spaces and introduction to general topological spaces. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 347 or MATH 348 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
47169	lecture-discussion	F13	02:00 PM - 02:50 PM	MWF	room 148 Henry Administration Bldg	Mackay, J
47169: 3 hours						
47170	lecture-discussion	F14	02:00 PM - 02:50 PM	MWF	room 148 Henry Administration Bldg	Mackay, J
47170: 4 hours Departmental Approval Required						

441 **Differential Equations** credit: 3 or 4 hours.

Basic course in ordinary differential equations; topics include existence and uniqueness of solutions and the general theory of linear differential equations; treatment is more rigorous than that given in MATH 285. 4 hours of credit requires approval of the instructor and completion of additional work of substance. Credit is not given for both MATH 441 and any of MATH 284, MATH 285, MATH 286. Prerequisite: MATH 241. Recommended: MATH 347 or MATH 348.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
39478	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 149 Henry Administration Bldg	Rapti, Z
39478: Quant Reasoning II course.						
39478: 3 hours Open to both undergraduate and graduate students.						
39479	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 149 Henry Administration Bldg	Rapti, Z
39479: Quant Reasoning II course.						
39479: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
38014	lecture-discussion	X13	12:00 PM - 12:50 PM	MWF	room 343 Altgeld Hall	Tzirakis, N
38014: Quant Reasoning II course.						

38014: 3 hours Open to both undergraduate and graduate students.						
38016	lecture-discussion	X14	12:00 PM - 12:50 PM	MWF	room 343 Altgeld Hall	Tzirakis, N
38016: Quant Reasoning II course.						
38016: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

442 **Intro Partial Diff Equations** credit: 3 or 4 hours.

Introduces partial differential equations, emphasizing the wave, diffusion and potential (Laplace) equations.

Focuses on understanding the physical meaning and mathematical properties of solutions of partial differential equations. Includes fundamental solutions and transform methods for problems on the line, as well as separation of variables using orthogonal series for problems in regions with boundary. Covers convergence of Fourier series in detail. 4 hours of credit requires approval of the instructor and completion of additional work of substance.

Prerequisite: One of MATH 284, MATH 285, MATH 286, MATH 441.

CRN	Type	Section	Time	Days	Location	Instructor
38018	lecture-discussion	E13	01:00 PM - 01:50 PM	MWF	room 345 Altgeld Hall	Zharnitsky, V
38018: 3 hours Open to both undergraduate and graduate students.						
38019	lecture-discussion	E14	01:00 PM - 01:50 PM	MWF	room 345 Altgeld Hall	Zharnitsky, V
38019: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

444 **Elementary Real Analysis** credit: 3 or 4 hours.

Careful treatment of the theoretical aspects of the calculus of functions of a real variable; topics include the real number system, limits, continuity, derivatives, and the Riemann integral. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Credit is not given for both MATH 444 and MATH 447. Prerequisite: MATH 241; MATH 347 or MATH 348, or equivalent.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
38024	lecture-discussion	E13	01:00 PM - 01:50 PM	MWF	room 143 Henry Administration Bldg	Miles, J
38024: Quant Reasoning II course.						
38024: 3 hours Open to both undergraduate and graduate students.						
38025	lecture-discussion	E14	01:00 PM - 01:50 PM	MWF	room 143 Henry Administration Bldg	Miles, J

38025: Quant Reasoning II course.						
38025: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
38021	lecture-discussion	N13	10:30 AM - 11:50 AM	TR	room 148 Henry Administration Bldg	Hinkkanen, A
38021: Quant Reasoning II course.						
38021: 3 hours Open to both undergraduate and graduate students.						
38022	lecture-discussion	N14	10:30 AM - 11:50 AM	TR	room 148 Henry Administration Bldg	Hinkkanen, A
38022: Quant Reasoning II course.						
38022: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

446 **Applied Complex Variables** credit: 3 or 4 hours.

For students who desire a working knowledge of complex variables; covers the standard topics and gives an introduction to integration by residues, the argument principle, conformal maps, and potential fields. Students desiring a systematic development of the foundations of the subject should take MATH 448. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Credit is not given for both MATH 446 and MATH 448. Prerequisite: MATH 241 or MATH 380; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38027	lecture-discussion	E13	01:00 PM - 01:50 PM	MWF	room 141 Altgeld Hall	Wu, J
38027: 3 hours Open to both undergraduate and graduate students.						
38028	lecture-discussion	E14	01:00 PM - 01:50 PM	MWF	room 141 Altgeld Hall	Wu, J
38028: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

447 **Real Variables** credit: 3 or 4 hours.

Careful development of elementary real analysis including such topics as completeness property of the real number system; basic topological properties of n-dimensional space; convergence of numerical sequences and series of functions; properties of continuous functions; and basic theorems concerning differentiation and Riemann integration. 3 undergraduate hours. 3 or 4 graduate hours. 4 hours of credit requires approval of the instructor and completion of additional work of substance. Credit is not given for both MATH 447 and MATH 444. Prerequisite: MATH 241 or equivalent; junior standing; MATH 347 or MATH 348, or equivalent experience; or consent of instructor.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
38030	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 141 Altgeld Hall	Nikolaev, I
38030: Quant Reasoning II course.						
38030: 3 hours Open to both undergraduate and graduate students.						
38031	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 141 Altgeld Hall	Nikolaev, I
38031: Quant Reasoning II course.						
38031: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

448 **Complex Variables** credit: 3 or 4 hours.

For students who desire a rigorous introduction to the theory of functions of a complex variable; topics include Cauchy's theorem, the residue theorem, the maximum modulus theorem, Laurent series, the fundamental theorem of algebra, and the argument principle. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Credit is not given for both MATH 448 and MATH 446. Prerequisite: MATH 241 or MATH 380; MATH 447.

CRN	Type	Section	Time	Days	Location	Instructor
38033	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 343 Altgeld Hall	Tumanov, A
38033: 3 hours Open to both undergraduate and graduate students.						
38034	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 343 Altgeld Hall	Tumanov, A
38034: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

450 **Numerical Analysis** credit: 3 or 4 hours.

Same as CS 450, CSE 401 and ECE 491. See CS 450.

CRN	Type	Section	Time	Days	Location	Instructor
31440	lecture-discussion	B3	09:00 AM - 09:50 AM	MWF	room 1109 Siebel Center for Comp Sci	Hirani, A
31440: 3 hours						
31443	lecture-discussion	B4	09:00 AM - 09:50 AM	MWF	room 1109 Siebel Center for Comp Sci	Hirani, A

31443: 4 hours Restricted to Graduate - Urbana-Champaign.

**453 Elementary Theory of Numbers** credit: 3 or 4 hours.

Basic introduction to the theory of numbers. Core topics include divisibility, primes and factorization, congruences, arithmetic functions, quadratic residues and quadratic reciprocity, primitive roots and orders. Additional topics covered at the discretion of the instructor include sums of squares, Diophantine equations, continued fractions, Farey fractions, recurrences, and applications to primality testing and cryptopgraphy. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 241 or equivalent.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
38037	lecture-discussion	F13	02:00 PM - 02:50 PM	MWF	room 149 Henry Administration Bldg	Vijay, S
38037: Quant Reasoning II course.						
38037: 3 hours Open to both undergraduate and graduate students.						
38040	lecture-discussion	F14	02:00 PM - 02:50 PM	MWF	room 149 Henry Administration Bldg	Vijay, S
38040: Quant Reasoning II course.						
38040: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
38042	lecture-discussion	X13	12:00 PM - 12:50 PM	MWF	room 145 Altgeld Hall	Schultz, A
38042: Quant Reasoning II course.						
38042: 3 hours Open to both undergraduate and graduate students.						
38044	lecture-discussion	X14	12:00 PM - 12:50 PM	MWF	room 145 Altgeld Hall	Schultz, A
38044: Quant Reasoning II course.						
38044: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

**461 Probability Theory** credit: 3 or 4 hours.

Introduction to mathematical probability; includes the calculus of probability, combinatorial analysis, random variables, expectation, distribution functions, moment-generating functions, and central limit theorem. Same as STAT 451. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Credit is not given for both MATH 461 and either MATH 408 or ECE 313. Prerequisite: MATH 241 or equivalent.

CRN	Type	Section	Time	Days	Location	Instructor
38047	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 347 Altgeld Hall	Hildebrand, A
38047: 3 hours						
38049	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 347 Altgeld Hall	Hildebrand, A
38049: 4 hours Instructor Approval Required						
38050	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 347 Altgeld Hall	Hildebrand, A
38050: 3 hours Open to both undergraduate and graduate students.						
38052	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 347 Altgeld Hall	Hildebrand, A
38052: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
38053	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 347 Altgeld Hall	Song, R
38053: 3 hours Open to both undergraduate and graduate students.						
38055	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 347 Altgeld Hall	Song, R
38055: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						
38063	lecture-discussion	G83	03:00 PM - 03:50 PM	MWF	room 24 Illini Hall	Carpenter, B
38063: 3 hours Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Open to both undergraduate and graduate students.						
38064	lecture-discussion	G84	03:00 PM - 03:50 PM	MWF	room 24 Illini Hall	Carpenter, B
38064: 4 hours Instructor Approval Required Uses Mathematica courseware. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for details. Open to both undergraduate and graduate students. Not intended for Undergrad - Urbana-Champaign.						
38056	lecture-discussion	M13	09:00 AM - 10:20 AM	TR	room 149 Henry Administration Bldg	Palmore, J
38056: 3 hours Open to both undergraduate and graduate students.						
38058	lecture-discussion	M14	09:00 AM - 10:20 AM	TR	room 149 Henry Administration Bldg	Palmore, J

38058: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.

463 **Statistics and Probability I** credit: 4 hours.  
Same as STAT 400. See STAT 400.

Students must register for one discussion and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
36139	discussion-recitation	AD1	03:00 PM - 03:50 PM	R	room 156 Henry Administration Bldg	Gan, L
36140	discussion-recitation	AD2	04:00 PM - 04:50 PM	R	room 156 Henry Administration Bldg	Gan, L
36141	discussion-recitation	AD3	04:00 PM - 04:50 PM	W	room 156 Henry Administration Bldg	Gan, L
36142	discussion-recitation	AD4	03:00 PM - 03:50 PM	W	room 156 Henry Administration Bldg	He, Z
36144	lecture	AL1	11:00 AM - 11:50 AM	MWF	room 1320 Digital Computer Laboratory	Douglas, J; Martinsek, A; Zhong, W
36145	discussion-recitation	BD1	03:00 PM - 03:50 PM	W	room 108 English Bldg	Liu, Y
36146	discussion-recitation	BD2	04:00 PM - 04:50 PM	T	room 130 Wohlers Hall	Liu, Y
36147	discussion-recitation	BD3	04:00 PM - 04:50 PM	W	room 138 Henry Administration Bldg	He, Z
48338	discussion-recitation	BD5	03:00 PM - 03:50 PM	T	room 156 Henry Administration Bldg	Liu, Y
36148	lecture	BL1	01:00 PM - 02:20 PM	TR	room 150 Animal Sciences Laboratory	Douglas, J; Martinsek, A; Zhong, W

464 **Statistics and Probability II** credit: 3 or 4 hours.  
Same as STAT 410. See STAT 410.

CRN	Type	Section	Time	Days	Location	Instructor
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36152	lecture-discussion	G1G	10:00 AM - 10:50 AM	MWF	room 24 Wohlers Hall	Qu, P
36152: 4 hours Restricted to Graduate - Urbana-Champaign.						
36151	lecture-discussion	G1U	10:00 AM - 10:50 AM	MWF	room 24 Wohlers Hall	Qu, P
36151: 3 hours Restricted to Undergrad - Urbana-Champaign.						

465 **Analysis of Variance** credit: 3 or 4 hours.  
Same as STAT 424. See STAT 424.

CRN	Type	Section	Time	Days	Location	Instructor
36175	lecture-discussion	D1G	02:00 PM - 02:50 PM	MWF	room 243 Mechanical Engineering Bldg	Liang, F
36175: 4 hours Restricted to Undergrad - Urbana-Champaign.						
36171	lecture-discussion	D1U	02:00 PM - 02:50 PM	MWF	room 243 Mechanical Engineering Bldg	Liang, F
36171: 3 hours Restricted to Graduate - Urbana-Champaign.						

469 **Methods of Applied Statistics** credit: 3 or 4 hours.  
Same as STAT 420. See STAT 420.

CRN	Type	Section	Time	Days	Location	Instructor
46321	lecture	D1G	02:00 PM - 02:50 PM	MWF	room 223 Gregory Hall	Stepanov, A
46321: 4 hours Restricted to Graduate - Urbana-Champaign.						
46322	lecture	D1U	02:00 PM - 02:50 PM	MWF	room 223 Gregory Hall	Stepanov, A
46322: 3 hours Restricted to Undergrad - Urbana-Champaign.						
36157	lecture	N1G	09:00 AM - 10:20 AM	TR	room 1310 Digital Computer Laboratory	Stepanov, A
36157: 4 hours Restricted to Graduate - Urbana-Champaign.						
36155	lecture	N1U	09:00 AM - 10:20 AM	TR	room 1310 Digital Computer Laboratory	Stepanov, A

36155: 3 hours Restricted to Undergrad - Urbana-Champaign.

472 **Actuarial Theory II** credit: 3 or 4 hours.

Continuation of MATH 471. Emphasis is on multiple-life functions. 3 undergraduate hours. 3 or 4 graduate hours. 4 hours of credit requires approval of the instructor and completion of additional work of substance. Prerequisite: MATH 471.

CRN	Type	Section	Time	Days	Location	Instructor
38083	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 114 David Kinley Hall	Johnson, P
38083: 3 hours Instructor approval forms available in 313 Altgeld Hall.						
51241	lecture-discussion	E13	01:00 PM - 01:50 PM	MWF	room 328 Armory	Johnson, P
51241: 3 hours						

473 **Algorithms** credit: 0 to 4 hours.

Same as CS 473 and CSE 414. See CS 473.

CRN	Type	Section	Time	Days	Location	Instructor
48333	discussion-recitation	AD1	05:00 PM - 05:50 PM	T	room 1111 Siebel Center for Comp Sci	Erickson, J
48335	discussion-recitation	AD2	06:00 PM - 06:50 PM	T	room 1111 Siebel Center for Comp Sci	Erickson, J
48337	discussion-recitation	AD3	02:00 PM - 02:50 PM	W	room 1111 Siebel Center for Comp Sci	Erickson, J
48339	discussion-recitation	AD4	03:00 PM - 03:50 PM	W	room 1111 Siebel Center for Comp Sci	Erickson, J
31577	lecture	AL1	11:00 AM - 12:15 PM	TR	room 1404 Siebel Center for Comp Sci	Erickson, J
31577: 3 hours This section is for UNDERGRADUATE students. Restricted to Undergrad - Urbana-Champaign.						

475 **Formal Models of Computation** credit: 3 or 4 hours.

Same as CS 475. See CS 475.

CRN	Type	Section	Time	Days	Location	Instructor
51365	lecture-discussion	C3	11:00 AM - 12:15 PM	TR	room 136 Burrill Hall	Lavalle, S
51365: 3 hours						
51366	lecture-discussion	C4	11:00 AM - 12:15 PM	TR	room 136 Burrill Hall	Lavalle, S
51366: 4 hours Restricted to Graduate - Urbana-Champaign.						

478 **Actuarial Modeling** credit: 3 or 4 hours.

Considers the specification and evaluation of various types of actuarial models. Examines severity, frequency, and compound distributions useful in modeling the insurance loss process. Credibility theory is also discussed. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: MATH 408, MATH 461 or MATH 463; credit or concurrent registration in MATH 409 or MATH 464.

CRN	Type	Section	Time	Days	Location	Instructor
39652	lecture-discussion	L13	08:30 AM - 09:50 AM	TR	room 269 Everitt Elec and Comp Engr Lab	Gorvett, R
39652: 3 hours						

481 **Vector and Tensor Analysis** credit: 3 or 4 hours.

Vector spaces, transformation properties, covariant and contravariant tensors, and differential geometry of surfaces; applications to relativity theory. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 241 or MATH 380, or equivalent; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38087	lecture-discussion	N13	10:30 AM - 11:50 AM	TR	room 343 Altgeld Hall	Kerman, E
38087: 3 hours Open to both undergraduate and graduate students.						
38089	lecture-discussion	N14	10:30 AM - 11:50 AM	TR	room 343 Altgeld Hall	Kerman, E
38089: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

482 **Linear Programming** credit: 3 or 4 hours.

Rigorous introduction to a wide range of topics in optimization, including a thorough treatment of basic ideas of linear programming, with additional topics drawn from numerical considerations, linear complementarity, integer programming and networks, polyhedral methods. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 410, MATH 415, or MATH 416.

CRN	Type	Section	Time	Days	Location	Instructor
38090	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 141 Altgeld Hall	Vijay, S
38090: 3 hours Open to both undergraduate and graduate students.						
38091	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 141 Altgeld Hall	Vijay, S
38091: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

484 **Nonlinear Programming** credit: 3 or 4 hours.

Iterative and analytical solutions of constrained and unconstrained problems of optimization; gradient and conjugate gradient solution methods; Newton's method, Lagrange multipliers, duality and the Kuhn-Tucker theorem; and quadratic, convex, and geometric programming. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 241; MATH 347 or MATH 348; or equivalent; MATH 415 or equivalent; or consent of instructor.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
38092	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 149 Henry Administration Bldg	Furedi, Z
38092: Quant Reasoning II course.						
38092: 3 hours Open to both undergraduate and graduate students.						
38093	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 149 Henry Administration Bldg	Furedi, Z
38093: Quant Reasoning II course.						
38093: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

487 **Advanced Engineering Math** credit: 3 or 4 hours.

Complex linear algebra, inner product spaces, Fourier transforms and analysis of boundary value problems, Sturm-Liouville theory. Same as ECE 493. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: One of MATH 284, MATH 285, MATH 286, MATH 441.

CRN	Type	Section	Time	Days	Location	Instructor
47012	lecture-discussion	Q13	12:00 PM - 01:20 PM	TR	room 441 Altgeld Hall	Allen, J
47012: 3 hours						

47013	lecture-discussion	Q14	12:00 PM - 01:20 PM	TR	room 441 Altgeld Hall	Allen, J
47013: 4 hours Departmental Approval Required						

489 **Differential Equations II** credit: 3 or 4 hours.

Treats systems of linear differential equations (including the necessary matrix theory), and then concentrates on nonlinear systems, studying their dynamics by means of phase plane analysis and other methods. Provides applications of nonlinear systems to physics and biology. 4 hours of credit requires approval of the instructor and completion of additional work of substance. Prerequisite: One of MATH 284, MATH 285, MATH 286, MATH 441.

CRN	Type	Section	Time	Days	Location	Instructor
38150	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 148 Henry Administration Bldg	Rapti, Z
38150: 3 hours Open to both undergraduate and graduate students.						
38151	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 148 Henry Administration Bldg	Rapti, Z
38151: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall. Not intended for Undergrad - Urbana-Champaign.						

490 **Advanced Topics in Mathematics** credit: 1 to 4 hours.

Deals with selected topics and applications of mathematics; see Class Schedule or department office for current topics. May be repeated with approval. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
41817	online	CIS	ARRANGED			Woods, D; Peressini, A
41817: Online AO Tuition 441, and AO Fees 41.00 dollars.						
41817: 1 hours Algebra through Modeling Module 5 - Algebra through Modeling with the TI-83 Graphing Calculator Family. Academic Outreach restrictions and assessments apply, see <a href="http://www.outreach.uiuc.edu">http://www.outreach.uiuc.edu</a> . This section is for CTER students.						
49587	online	DDS	ARRANGED			Woods, D; Peressini, A
49587: Online AO Tuition 441, and AO Fees 41.00 dollars.						
49587: 1 hours Discrete Dynamical Systems Discrete Dynamical Systems for Mathematics Teachers-MODULE 11. Academic Outreach restrictions and assessments apply, see <a href="http://www.outreach.uiuc.edu">http://www.outreach.uiuc.edu</a> . This section is for CTER students.						
49576	online	DGG	ARRANGED			Woods, D; Peressini, A

49576: OnlineAO Tuition 441, and AO Fees 41.00 dollars.

49576: 1 hoursDynamic Geometry w/SketchPadDynamic Gemoetry with Geometer's SketchPad-Module 10. Academic Outreach restrictions and assessments apply, see <http://www.outreach.uiuc.edu>; this section is for students in a CTER Cohort.

49528	online	DGS	ARRANGED			Woods, D; Peressini, A
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49528: OnlineAO Tuition 441, and AO Fees 41.00 dollars.

49528: 1 hoursUsing the Geometers SketchPadModule 4 - Using the Geometer's Sketch Pad. Academic Outreach restrictions and assessments apply, see <http://www.outreach.uiuc.edu>. This section is for CTER students.

491 **Logic Design** credit: 3 hours.  
Same as CS 462 and ECE 462. See ECE 462.

CRN	Type	Section	Time	Days	Location	Instructor
33959	discussion-recitation	C	11:00 AM - 12:20 PM	TR	room 106B8 Engineering Hall	Vasudevan, S

493 **Statistical Computing** credit: 3 or 4 hours.  
Same as STAT 428. See STAT 428.

CRN	Type	Section	Time	Days	Location	Instructor
36198	lecture-discussion	M1G	01:00 PM - 01:50 PM	MWF	room 2 Illini Hall	Chen, Y
36198: 4 hoursRestricted to Graduate - Urbana-Champaign.						
36197	lecture-discussion	M1U	01:00 PM - 01:50 PM	MWF	room 2 Illini Hall	Chen, Y
36197: 3 hoursRestricted to Undergrad - Urbana-Champaign.						

496 **Honors Seminar** credit: 3 hours.  
Careful study of a selected area of mathematics, carried out either deductively from axioms or inductively through problems; subject matter varies with instructor. 3 undergraduate hours. No graduate credit. May be repeated to a maximum of 6 hours. Prerequisite: Consent of Mathematics Honors Committee.

CRN	Type	Section	Time	Days	Location	Instructor
40657	lecture-discussion	F1H	02:00 PM - 02:50 PM	MWF	room 243 Altgeld Hall	Reznick, B
40657: Departmental Approval Required						

499 **Introduction Graduate Research** credit: 1 hours.

Seminar is required of all first-year graduate students in Mathematics. It provides a general introduction to the courses and research work in all of the areas of mathematics that are represented at the University of Illinois at Urbana-Champaign. Approved for S/U grading only. May be repeated to a maximum of 2 hours. Prerequisite: Graduate standing or consent of instructor.

This course must be taken by all first year graduate students in the department of mathematics.

CRN	Type	Section	Time	Days	Location	Instructor
38152	lecture-discussion	H1	04:00 PM - 04:50 PM	W	room 245 Altgeld Hall	Mortensen, K

501 **Abstract Algebra II** credit: 4 hours.

Solvable groups, finite p-groups, semidirect products, Sylow's theorem; Galois Theory, transcendental extensions, separable and normal extensions, finite Galois groups, Theorem of the Primitive Element, Fundamental Theorem of Galois Theory, symmetric Function Theorem, examples, cyclotomic, cyclic and radical extensions; Modules over Arbitrary Rings, exact sequences, projective and injective modules, Tensor products, Matrix rings, Schur's lemma, Wedderburn's theorem on semisimple rings, group algebras, Maschke's theorem; Algebraic Geometry, varieties, morphisms of varieties, Noetherian properties, Irreducible varieties and prime ideals. Prerequisite: MATH 500.

CRN	Type	Section	Time	Days	Location	Instructor
38154	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 143 Altgeld Hall	Robinson, D

503 **Group Theory** credit: 4 hours.

Structure of groups, derived groups, nilpotence and solvability, and extensions and products. Prerequisite: MATH 501 or equivalent.

CRN	Type	Section	Time	Days	Location	Instructor
39508	lecture-discussion	S1	02:00 PM - 03:20 PM	TR	room 445 Altgeld Hall	Ivanov, S

511 **Algebraic Geometry** credit: 4 hours.

Properties of affine and projective varieties defined over algebraically closed fields; rational mappings, birational geometry and divisors, especially on curves and surfaces; introduction to the language of schemes; and Riemann-Roch theorem for curves. Prerequisite: MATH 501.

CRN	Type	Section	Time	Days	Location	Instructor
38163	lecture-discussion	M1	09:00 AM - 10:20 AM	TR	room 57 Everitt Elec and Comp Engr Lab	Li, L

519 **Differentiable Manifolds II** credit: 4 hours.

Vector bundles, principal bundles, connections, parallel transport, curvature, Chern-Weyl theory, Hodge-DeRham theory. Other topics may include Riemannian geometry, symplectic geometry, spin geometry, and harmonic maps. Prerequisite: MATH 518 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
49968	lecture-discussion	B1	11:00 AM - 11:50 AM	MWF	room 447 Altgeld Hall	Leininger, C

526 **Algebraic Topology** credit: 4 hours.

CW-complexes, relative homeomorphism theorem, cellular homology, cohomology, Kunneth theorem, Eilenberg-Zilber theorem, cup products, Poincare duality, examples. Prerequisite: MATH 525, MATH 500; or consent of instructor. MATH 501 is recommended but not required.

CRN	Type	Section	Time	Days	Location	Instructor
40561	lecture-discussion	M1	09:30 AM - 10:50 AM	TR	room 252 Mechanical Engineering Bldg	Tolman, S

530 **Algebraic Number Theory** credit: 4 hours.

Further development of the theory of fields covering topics from valuation theory, ideal theory, units in algebraic number fields, ramification, function fields, and local class field theory. Prerequisite: MATH 500 or equivalent.

CRN	Type	Section	Time	Days	Location	Instructor
38155	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 341 Altgeld Hall	Dunfield, N

535 **General Topology** credit: 4 hours.

Study of topological spaces and maps, including Cartesian products, identifications, connectedness, compactness, uniform spaces, and function spaces. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38167	lecture-discussion	G1	03:00 PM - 03:50 PM	MWF	room 347 Altgeld Hall	Guillou, B

540 **Real Analysis I** credit: 4 hours.

Lebesgue measure on the real line; integration and differentiation of real valued functions of a real variable; and additional topics at discretion of instructor. Prerequisite: MATH 447 or equivalent.

CRN	Type	Section	Time	Days	Location	Instructor
38170	lecture-discussion	E1	01:00 PM - 01:50 PM	MWF	room 443 Altgeld Hall	Loeb, P

541 **Real Analysis II** credit: 4 hours.

Abstract measure theory; integration on general measure spaces; and introduction to functional analysis.

Prerequisite: MATH 540.

CRN	Type	Section	Time	Days	Location	Instructor
38171	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 447 Altgeld Hall	Junge, M

542 **Complex Variables I** credit: 4 hours.

Topics include the Cauchy theory, harmonic functions, entire and meromorphic functions, and the Riemann mapping theorem. Prerequisite: MATH 446 and MATH 447, or MATH 448.

CRN	Type	Section	Time	Days	Location	Instructor
38169	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 343 Altgeld Hall	Nikolaev, I

546 **Hilbert Spaces** credit: 4 hours.

Geometrical properties of Hilbert spaces; linear operators; and the spectral theory for self adjoint and related operators. Prerequisite: MATH 541.

CRN	Type	Section	Time	Days	Location	Instructor
49976	lecture-discussion	E1	01:00 PM - 01:50 PM	MWF	room 441 Altgeld Hall	Ruan, Z

552 **Numerical Methods for PDEs** credit: 4 hours.

Same as CS 555 and CSE 510. See CS 555.

CRN	Type	Section	Time	Days	Location	Instructor
50119	lecture	N	12:30 PM - 01:45 PM	TR	room 1103 Siebel Center for Comp Sci	Bond, S
50119: 4 hours						

553 **Partial Differential Equations** credit: 4 hours.

Basic introduction to the study of partial differential equations; topics include: the Cauchy problem, power-series methods, characteristics, classification, canonical forms, well-posed problems, Riemann's method for hyperbolic equations, the Goursat problem, the wave equation, Sturm-Liouville problems and separation of variables, Fourier series, the heat equation, integral transforms, Laplace's equation, harmonic functions, potential theory, the Dirichlet and Neumann problems, and Green's functions. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
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39528	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 343 Altgeld Hall	Bronski, J
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555 ***Nonlinear Anal & Part Diff Eq*** credit: 4 hours.

Course will provide students with the basic background in nonlinear analysis associated with partial differential equations. The specific topics chosen will be largely up to the instructor, but will cover such areas as existence and uniqueness techniques, nonexistence and finite time blow-up results, hyperbolic conservation laws, weak solutions, stability theory, nonlinear elliptic theory, regularity theory. Prerequisite: MATH 554 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38196	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 445 Altgeld Hall	Tzirakis, N

561 ***Theory of Probability I*** credit: 4 hours.

Mathematical foundations of probability and stochastic processes; probability measures, random variables, distribution functions, convergence theory, the Central Limit Theorem, conditional expectation, and martingale theory. Same as STAT 551. Prerequisite: MATH 541 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38173	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 443 Altgeld Hall	Song, R

567 ***Topics in Actuarial Theory I*** credit: 4 hours.

Selected topics in advanced actuarial science. May be repeated to a maximum of 16 hours. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38188	discussion-recitation	D14	11:00 AM - 11:50 AM	MWF	room 114 David Kinley Hall	Johnson, P

568 ***Topics in Actuarial Theory II*** credit: 4 hours.

Topics in mathematical theory of actuarial science beyond basic life contingencies, such as graduation of mortality tables, survival models, mathematics of demography. See Class Schedule or department office for current topics. A paper will generally be required. May be repeated to a maximum of 16 hours. Prerequisite: STAT 409 or STAT 410 or equivalent; credit or concurrent registration in MATH 471.

CRN	Type	Section	Time	Days	Location	Instructor
38193	lecture-discussion	L14	08:30 AM - 09:50 AM	TR	room 269 Everitt Elec and Comp Engr Lab	Gorvett, R

578 ***Computational Complexity*** credit: 4 hours.

Same as CS 579 and ECE 579. See CS 579.

CRN	Type	Section	Time	Days	Location	Instructor
41447	lecture-discussion	F	03:30 PM - 04:45 PM	TR	room 1103 Siebel Center for Comp Sci	Prabhakaran, M
41447: 4 hours						

581 **Extremal Graph Theory** credit: 4 hours.

Extremal problems and parameters for graphs. Distance and connectivity, matching and factors, vertex and edge colorings, perfect and imperfect graphs, intersection classes and intersection parameters, Turan's theorem, graph Ramsey theory, graph decomposition and other extremal problems. Same as CS 572. Prerequisite: MATH 580 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38159	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 147 Altgeld Hall	West, D

589 **Conjugate Duality and Optim** credit: 4 hours.

Convex analysis for constrained extremum problems; convex sets, cones, and functions; separation; Fenchel transform; duality correspondences; differential theory; nonlinear programming; sensitivity; and perturbational duality for primal, dual, and Lagrangian problems. Prerequisite: MATH 415 and MATH 447, or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
51401	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 343 Altgeld Hall	Furedi, Z

595 **Advanced Topics in Math** credit: 1 to 4 hours.

May be repeated in the same or separate semesters. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
46008	lecture-discussion	AEN	12:00 PM - 12:50 PM	MWF	room 345 Altgeld Hall	Pollack, P
46008: 4 hours Topic: Advanced Topics in Elementary Number Theory. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
51267	lecture-discussion	ANT	01:00 PM - 01:50 PM	MWF	room 347 Altgeld Hall	Balog, J
51267: 2 hours Topic: Additive Number Theory. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description. Meets 20-Jan-09 - 13-Mar-09.						

49979	lecture-discussion	APA	03:00 PM - 03:50 PM	MWF	room 345 Altgeld Hall	Boca, F
49979: 4 hoursTopic: Analytic and Probabilistic Aspects of Continued Fractions. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
49992	lecture-discussion	AVA	02:00 PM - 02:50 PM	MWF	room 445 Altgeld Hall	Sabitova, M
49992: 2 hoursTopic: Abelian Varieties and their Arithmetic. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.Meets 16-Mar-09 - 06-May-09.						
51394	lecture-discussion	BVM	10:30 AM - 11:50 AM	TR	room 141 Altgeld Hall	Kirr, E
51394: 4 hoursTopic: Bifurcation and Variational Methods in Nonlinear Parial Differential Equations. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description						
45995	lecture-discussion	CSF	12:00 PM - 01:20 PM	TR	room 141 Altgeld Hall	Yong, A
45995: 4 hoursTopic: Combinatorics of Symmetric Functions See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
49974	lecture-discussion	DST	01:00 PM - 01:50 PM	MWF	room 447 Altgeld Hall	Solecki, S
49974: 4 hoursTopic: Descriptive Set Theory. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
49977	lecture-discussion	HCT	02:00 PM - 02:50 PM	MWF	room 441 Altgeld Hall	Rezk, C
49977: 4 hoursTopic: Higher Category Theory. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
51887	lecture-discussion	HDS	09:00 AM - 10:20 AM	TR	room 341 Altgeld Hall	Kerman, E
51887: 2 hoursTopic: Hamiltonian Dynamics and Symplectic Topology. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.Meets 16-Mar-09 - 06-May-09.						
51218	lecture-discussion	IC	09:00 AM - 10:20 AM	TR	room 141 Altgeld Hall	Di Francesco, P
51218: 4 hoursTopic: Integrable Combinatorics. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
49972	lecture-discussion	IMF	11:00 AM - 11:50 AM	MWF	room 441 Altgeld Hall	Rouse, J
49972: 4 hoursTopic: Introduction to Modular Forms. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
43505	lecture-discussion	LC2	10:30 AM - 11:50 AM	TR	room 341 Altgeld Hall	Dutta, S

43505: 4 hoursTopic: Local Cohomology II. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
49971	lecture-discussion	MBB	10:00 AM - 10:50 AM	MWF	room 345 Altgeld Hall	Nevins, T
49971: 4 hoursTopic: 0-Modules and Beilinson-Bernstein Localization. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
39574	lecture-discussion	NA	03:00 PM - 03:50 PM	MWF	room 243 Altgeld Hall	Henson, C
39574: Topic: Nonstandard Analysis. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
41543	lecture-discussion	RB	11:00 AM - 12:20 PM	TR		Blahut, R
41543: 4 hoursTopic: Cryptography - Theory and Practice. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.						
49969	lecture-discussion	SGA	09:00 AM - 09:50 AM	MWF	room 447 Altgeld Hall	Tyson, J
49969: 2 hoursTopic: Sub-Riemannian Geometry and Analysis. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description.Meets 16-Mar-09 - 06-May-09.						

597 **Reading Course** credit: 1 to 8 hours.

Approved for both letter and S/U grading. May be repeated in the same or separate terms to a maximum of 8 hours.

Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10556	independent study		ARRANGED			
10556: Instructor Approval Required						
10556: Instructor approval required.						

598 **Literature Seminar in Math** credit: 0 to 4 hours.

Seminar on topics of current interest in mathematics. Students present seminars and discussions on various topics.

See Class Schedule for current topics. Recommended for all Mathematics students. Approved for both letter and S/U grading. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
52024	lecture-discussion	JT	04:00 PM - 04:50 PM	W	room 341 Altgeld Hall	Tyson, J
52024: 1 hours						

45371	lecture-discussion	REN	03:00 PM - 03:50 PM	TR	room 341 Altgeld Hall	Berndt, B
45371: 2 hours Topic: Research Experience in Number Theory. See <a href="http://www.math.uiuc.edu/timetable/">http://www.math.uiuc.edu/timetable/</a> for the full course description. Not intended for Undergrad - Urbana-Champaign.						

599 **Thesis Research** credit: 0 to 16 hours.  
 May be repeated. Approved for S/U grading only. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10600	independent study		ARRANGED			
10600: Instructor Approval Required						
10600: Instructor approval required.						