

Course Schedule - Spring 2008

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	Kim, E
39373	lecture	AL1	11:00 AM - 11:50 AM	MWF	room 245 Altgeld Hall	Ahlgren, A
39581	lecture-discussion	X1	12:30 PM - 01:50 PM	MTWR	room 445 Altgeld Hall	Wahl, K
39581: 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	De Jarnette, N
37822: Quant Reasoning I course.						
37823	laboratory	AB3	01:00 PM - 02:40 PM	R	room 14 Illini Hall	De Jarnette, N
37823: Quant Reasoning I course.						

37824	laboratory	AB4	01:00 PM - 02:40 PM	F	room 14 Illini Hall	Popa, A
37824: Quant Reasoning I course.						
37825	lecture	AL1	10:00 AM - 10:50 AM	TR	room 160 English Bldg	Purkayastha, S
37825: Quant Reasoning I course.						
37825: Open to Elementary Education, Early Childhood, Pre-Teacher Ed, and Ed General Majors ONLY.						

115 **Precalculus** credit: 3 hours.

Analytic geometry; exponential and logarithmic functions; trigonometric functions of real numbers; trigonometric functions of angles; analytic trigonometry; limits and a preview of calculus; and a focus on modeling. Credit is not given for both MATH 115 and 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 or equivalent.

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

CRN	Type	Section	Time	Days	Location	Instructor
46408	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 314 Altgeld Hall	Purkayastha, S; Ahlgren, A
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	Wendler, C
37509: Quant Reasoning I course.						
37510	laboratory	AB2	11:00 AM - 12:40 PM	R	room 14 Illini Hall	Buck, W
37510: Quant Reasoning I course.						
37511	laboratory	AB3	03:00 PM - 04:40 PM	W	room 14 Illini Hall	Wendler, C

37511: Quant Reasoning I course.						
37512	laboratory	AB4	11:00 AM - 12:40 PM	W	room 14 Illini Hall	Buck, W
37512: Quant Reasoning I course.						
37513	lecture	AL1	03:00 PM - 04:40 PM	T	room 223 Gregory Hall	Purkayastha, S
37513: Quant Reasoning I course.						

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	Cooney, T
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 ACT score.

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

Note: Mathematics placement exams have been eliminated.

CRN	Type	Section	Time	Days	Location	Instructor
37550	lecture-discussion	A1	08:00 AM - 08:50 AM	MWF	room 143 Altgeld Hall	Miller, J
37550: Quant Reasoning I course.						
37552	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 145 Altgeld Hall	Koestler, C
37552: Quant Reasoning I course.						
41627	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 447 Altgeld Hall	Aramayona Delgado, J
41627: Quant Reasoning I course.						

37556	lecture-discussion	E1	01:00 PM - 01:50 PM	MWF	room 143 Altgeld Hall	Lebl, J
37556: Quant Reasoning I course.						
37553	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 147 Altgeld Hall	Ozkahya, L
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 ACT score.

Mathematics placement exams have been eliminated. Math ACT scores are used in their place.

CRN	Type	Section	Time	Days	Location	Instructor
37558	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 114 David Kinley Hall	Carty, T; Lesaulnier, T
37562	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 1320 Digital Computer Laboratory	Carty, T
37564	lecture-discussion	L1	08:30 AM - 10:50 AM	TR	room 445 Altgeld Hall	Wahl, K
37564: Restricted to students in the transition/bridge program.						
37560	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 112 Chemistry Annex	Carty, T; 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 106B1 Engineering Hall	Patterson, J
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	Hirtz, N
39276: Quant Reasoning I course.						
37488	lecture-discussion	R1	01:00 PM - 02:20 PM	TR	room 151 Everitt Elec and Comp Engr Lab	Hong, F
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	Dennison, M
47120: Quant Reasoning I course.						
47121	lecture-discussion	D1	11:00 AM - 12:20 PM	MTWR	room 445 Altgeld Hall	Wahl, K
47121: Quant Reasoning I course.						
47121: Restricted to students in the transition/bridge program.						
46843	lecture-discussion	D2	11:00 AM - 11:50 AM	MWF	room 345 Altgeld Hall	Ruan, Z
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	Li, L
46844: Quant Reasoning I course.						
47119	lecture-discussion	E2	01:00 PM - 02:50 PM	MWF	room 142 Henry Administration Bldg	Rapti, Z
47119: Quant Reasoning I course.						
47119: Meets 10-Mar-08 - 30-Apr-08.						
46845	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 145 Altgeld Hall	Weaver, S
46845: Quant Reasoning I course.						
46846	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 241 Altgeld Hall	Eldred, R
46846: Quant Reasoning I course.						

198 **Freshman Seminar** credit: 3 hours.

Guides the student in the study of selected topics not considered in standard courses. Prerequisite: Enrollment in the mathematics honors program; consent of department.

CRN	Type	Section	Time	Days	Location	Instructor
37820	lecture-discussion	G1H	03:00 PM - 03:50 PM	MWF	room 141 Altgeld Hall	Francis, G
37820: Camp Honors/Chanc Schol course.						
37820: Special Topic: Hypergraphics, 3 hours. This section for Chancellor's Scholars only (not restricted by major or year); other students may only enroll with consent of instructor and the Campus Honors Program.						

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						
49060	lecture-discussion	FTM	03:00 PM - 03:50 PM	W	room 201 1505GR	Sebestik, J

49060: 1 hours Preparing Future Teachers of Mathematics. See <http://www.math.uiuc.edu/timetable/> for the full course description.

48356	discussion-recitation	JMM	01:00 PM - 02:50 PM	M	room 159 Altgeld Hall	Maki, J
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48356: 1 hours Departmental Approval Required For Math 115 Merit Workshop students only. Departmental approval required. For further information see <http://www.math.uiuc.edu/timetable/>

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
37827	lecture-discussion	N1	10:30 AM - 11:50 AM	TR	room 319 Gregory Hall	Hubscher, R

37827: 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	Kapovitch, I

37828: Quant Reasoning II course.

37828: Restricted to freshmen and sophomores.

CRN	Type	Section	Time	Days	Location	Instructor
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 equivalent; or an adequate ACT score.

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

Mathematics placement exams have been eliminated. Math ACT scores are used in their place. 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	Sabitova, M
37543: Quant Reasoning I course.						
37543: Small group learning lab.						
37522	discussion-recitation	AD1	01:00 PM - 01:50 PM	TR	room 143 Altgeld Hall	Fuladi, L
37522: Quant Reasoning I course.						
37524	discussion-recitation	AD2	01:00 PM - 01:50 PM	TR	room 145 Altgeld Hall	Slutsky, K
37524: Quant Reasoning I course.						
37526	discussion-recitation	AD3	01:00 PM - 01:50 PM	TR	room 341 Altgeld Hall	Atkinson, J
37526: Quant Reasoning I course.						
37529	discussion-recitation	AD5	02:00 PM - 02:50 PM	TR	room 143 Altgeld Hall	Choi, J
37529: Quant Reasoning I course.						
37531	discussion-recitation	AD6	02:00 PM - 02:50 PM	TR	room 147 Altgeld Hall	Atkinson, J
37531: Quant Reasoning I course.						
37535	discussion-recitation	AD8	11:00 AM - 12:50 PM	MWF	room 173 Altgeld Hall	Carlisle, S
37535: Quant Reasoning I course.						
37535: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see http://www.math.uiuc.edu/timetable/ .						
37536	discussion-recitation	AD9	09:00 AM - 10:50 AM	MWF	room 173 Altgeld Hall	Fryer, D
37536: Quant Reasoning I course.						

37536: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see <http://www.math.uiuc.edu/timetable/>.

37542	lecture-discussion	AE1	11:00 AM - 11:50 AM	MTWR	Room 143 Altgeld Hall	Sabitova, M
37542: Quant Reasoning I course.						
37542: Uses small group learning methods. See http://www.math.uiuc.edu/timetable/ for details. Must also sign up for 37543.						
37538	lecture	AL1	01:00 PM - 01:50 PM	MWF	room 314 Altgeld Hall	Whittlesey, K; Ahlgren, A
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.						
48792	discussion-recitation	BD1	02:00 PM - 02:50 PM	TR	room 441 Altgeld Hall	Kim, I
48792: Quant Reasoning I course.						
48793	discussion-recitation	BD2	12:00 PM - 12:50 PM	TR	room 443 Altgeld Hall	Kim, I
48793: Quant Reasoning I course.						
48795	discussion-recitation	BD4	11:00 AM - 11:50 AM	TR	room 140 Henry Administration Bldg	Van Halewyck, J
48795: Quant Reasoning I course.						
48796	discussion-recitation	BD5	10:00 AM - 10:50 AM	TR	room 143 Henry Administration Bldg	Van Halewyck, J
48796: Quant Reasoning I course.						
48797	discussion-recitation	BD6	01:00 PM - 01:50 PM	TR	room 154 Henry Administration Bldg	Thiel, J
48797: Quant Reasoning I course.						
48798	discussion-recitation	BD7	03:00 PM - 03:50 PM	TR	room 143 Altgeld Hall	Thiel, J
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 http://www.math.uiuc.edu/timetable/ for details. Must also sign up for 37540.						
48791	lecture	BL1	03:00 PM - 03:50 PM	MWF	room 114 David Kinley Hall	McNeilly, J; Ahlgren, A
48791: Quant Reasoning I course.						
37547	laboratory-discussion	D8	11:00 AM - 11:50 AM	MTWRF	Room 24 Illini Hall	Appuhn, C
37547: Quant Reasoning I course.						
37547: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details.						
37548	laboratory-discussion	X8	12:00 PM - 12:50 PM	MTWRF	Room 24 Illini Hall	Sinick, J
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	Rezk, C
37832	lecture-discussion	N2	10:00 AM - 10:50 AM	TR	room 147 Altgeld Hall	Erdogan, M
37833	lecture-discussion	P1	11:00 AM - 11:50 AM	TR	room 142 Henry Administration Bldg	Yang, M
37834	lecture-discussion	P2	11:00 AM - 11:50 AM	TR	room 149 Henry Administration Bldg	Ivanov, S
37835	lecture-discussion	Q1	12:00 PM - 12:50 PM	TR	room 149 Henry Administration Bldg	Dutta, S

37836	lecture-discussion	Q2	12:00 PM - 12:50 PM	TR	room 341 Altgeld Hall	Nikolaev, I
37837	lecture-discussion	R1	01:00 PM - 01:50 PM	TR	room 142 Henry Administration Bldg	Loeb, P
37838	lecture-discussion	R2	01:00 PM - 01:50 PM	TR	room 447 Altgeld Hall	Yang, M
37841	lecture-discussion	S1	02:00 PM - 02:50 PM	TR	room 142 Henry Administration Bldg	Kirr, E
37844	laboratory-discussion	S8	02:00 PM - 02:50 PM	TR	room 245 Altgeld Hall	Kirov, R
37844: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details.						
37842	lecture-discussion	T1	03:00 PM - 03:50 PM	TR	room 142 Henry Administration Bldg	Yang, M
37846	lecture-discussion	T2	03:00 PM - 04:50 PM	TR	room 149 Henry Administration Bldg	Gadre, V
37846: Meets 10-Mar-08 - 30-Apr-08.						
37845	laboratory-discussion	T8	03:00 PM - 04:50 PM	TR	room 156 Henry Administration Bldg	Avsec, S
37845: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details. Meets 10-Mar-08 - 30-Apr-08.						

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	Stapleton, N
46017: Quant Reasoning I course.						
46017: Uses small group learning methods. See http://www.math.uiuc.edu/timetable/ for details. Must also sign up for 46025.						

46018	discussion- recitation	AD1	08:00 AM - 08:50 AM	TR	room 141 Altgeld Hall	Dixit, A
46018: Quant Reasoning I course.						
46019	discussion- recitation	AD2	09:00 AM - 09:50 AM	TR	room 145 Altgeld Hall	Dixit, A
46019: Quant Reasoning I course.						
46020	discussion- recitation	AD3	11:00 AM - 11:50 AM	TR	room 145 Altgeld Hall	Sneed, J
46020: Quant Reasoning I course.						
46021	discussion- recitation	AD4	12:00 PM - 12:50 PM	TR	room 147 Altgeld Hall	Stodolsky, B
46021: Quant Reasoning I course.						
46022	discussion- recitation	AD5	01:00 PM - 01:50 PM	TR	room 140 Henry Administration Bldg	O, S
46022: Quant Reasoning I course.						
46023	discussion- recitation	AD6	02:00 PM - 02:50 PM	TR	room 145 Altgeld Hall	O, S
46023: Quant Reasoning I course.						
47542	discussion- recitation	AD7	10:00 AM - 10:50 AM	TR	room 347 Altgeld Hall	Sneed, J
47542: Quant Reasoning I course.						
46025	lecture- discussion	AE1	11:00 AM - 11:50 AM	MWF	room 140 Henry Administration Bldg	Stapleton, N
46025: Quant Reasoning I course.						
46025: Uses small group learning methods. See http://www.math.uiuc.edu/timetable/ for details. Must also sign up for 46017.						
46026	lecture	AL1	12:00 PM - 12:50 PM	MW	room 100 Gregory Hall	Koestler, C
46026: Quant Reasoning I course.						
46028	laboratory- discussion	B8	09:00 AM - 09:50 AM	MWF	room 241 Altgeld Hall	Bonnell, C
46028: Quant Reasoning I course.						
46028: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details.						

46030	laboratory	BB1	03:00 PM - 04:50 PM	W	room 159 Altgeld Hall	Tellez, H
46030: Quant Reasoning I course.						
46030: Uses small group learning methods. See http://www.math.uiuc.edu/timetable/ for details. Must also sign up for 46031.						
46032	discussion-recitation	BD1	08:00 AM - 08:50 AM	TR	room 143 Altgeld Hall	
46032: Quant Reasoning I course.						
46033	discussion-recitation	BD2	09:00 AM - 09:50 AM	TR	room 143 Altgeld Hall	
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	Prugsapitak, S
46035: Quant Reasoning I course.						
46036	discussion-recitation	BD5	01:00 PM - 01:50 PM	TR	room 147 Altgeld Hall	Lee, J
46036: Quant Reasoning I course.						
46037	discussion-recitation	BD6	03:00 PM - 03:50 PM	TR	room 141 Altgeld Hall	Lee, J
46037: Quant Reasoning I course.						
46031	lecture-discussion	BE1	12:00 PM - 12:50 PM	MWF	room 140 Henry Administration Bldg	Tellez, H
46031: Quant Reasoning I course.						
46031: Uses small group learning methods. See http://www.math.uiuc.edu/timetable/ for details. Must also sign up for 46030.						
46038	lecture	BL1	01:00 PM - 01:50 PM	MW	room 1320 Digital Computer Laboratory	Zharnitsky, V
46038: Quant Reasoning I course.						
46040	discussion-recitation	CD1	09:00 AM - 09:50 AM	TR	room 147 Altgeld Hall	Bronski, J; Dong, Z
46040: Quant Reasoning I course.						

46041	discussion-recitation	CD2	10:00 AM - 10:50 AM	TR	room 143 Altgeld Hall	Bronski, J; Yeh, S
46041: Quant Reasoning I course.						
46042	discussion-recitation	CD3	12:00 PM - 12:50 PM	TR	room 140 Henry Administration Bldg	Bronski, J; Park, H
46042: Quant Reasoning I course.						
46043	discussion-recitation	CD4	02:00 PM - 02:50 PM	TR	room 140 Henry Administration Bldg	Bronski, J; Choi, J
46043: Quant Reasoning I course.						
46044	discussion-recitation	CD5	09:00 AM - 10:50 AM	TR	room 173 Altgeld Hall	Bronski, J; Kelsey, G
46044: Quant Reasoning I course.						
46044: Departmental Approval RequiredFor Merit Workshop students only. Departmental approval required. For further information see http://www.math.uiuc.edu/timetable/ .						
46045	discussion-recitation	CD6	01:00 PM - 02:50 PM	TR	room 173 Altgeld Hall	Bronski, J; Butterfield, J
46045: Quant Reasoning I course.						
46045: Departmental Approval RequiredFor Merit Workshop students only. Departmental approval required. For further information see http://www.math.uiuc.edu/timetable/ .						
46046	lecture	CL1	03:00 PM - 03:50 PM	MW	room 66 Library - Main	Bronski, J
46046: Quant Reasoning I course.						
46047	lecture-discussion	D1H	11:00 AM - 11:50 AM	MWF	room 145 Altgeld Hall	Leininger, C
46047: Quant Reasoning I course.						
46047: Departmental Approval RequiredRequires concurrent registration in Math 249 P1H.						
46048	laboratory	D8	11:00 AM - 11:50 AM	MWF	room 241 Altgeld Hall	Uhl, J
46048: Quant Reasoning I course.						
46048: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details.						
49490	discussion-recitation	DD1	08:00 AM - 08:50 AM	TR	room 243 Altgeld Hall	Liu, C
49490: Quant Reasoning I course.						

49491	discussion- recitation	DD2	09:00 AM - 09:50 AM	TR	room 143 Henry Administration Bldg	Liu, C
49491: Quant Reasoning I course.						
49574	discussion- recitation	DD3	08:00 AM - 08:50 AM	TR	room 241 Altgeld Hall	Chen, H
49574: Quant Reasoning I course.						
49489	lecture	DL1	08:00 AM - 08:50 AM	MW	room 269 Everitt Elec and Comp Engr Lab	Li, L
49489: Quant Reasoning I course.						
48401	lecture- discussion	E1H	01:00 PM - 01:50 PM	MWF	room 243 Altgeld Hall	Merenkov, S
48401: Quant Reasoning I course.						
48401: Departmental Approval RequiredRequires concurrent registration in Math 249 Q1H.						
46049	lecture- discussion	U1	10:00 AM - 10:50 AM	MWF	room 40 Allen Residence Hall	Duong, H
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	Green, W
46050: Quant Reasoning I course.						
46050: Departmental Approval RequiredFor Merit Workshop students only. Departmental approval required. For further information see http://www.math.uiuc.edu/timetable/ .						
46051	lecture- discussion	W2	09:00 AM - 10:50 AM	MWF	room 159 Altgeld Hall	Hill, A
46051: Quant Reasoning I course.						
46051: Departmental Approval RequiredFor Merit Workshop students only. Departmental approval required. For further information see http://www.math.uiuc.edu/timetable/ .						
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 RequiredFor Merit Workshop students only. Departmental approval required. For further information see http://www.math.uiuc.edu/timetable/ .						

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.

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
37794	discussion-recitation	AD1	09:00 AM - 09:50 AM	TR	room 241 Altgeld Hall	Bansal, S
37794: Quant Reasoning I course.						
37796	discussion-recitation	AD3	10:00 AM - 10:50 AM	TR	room 7 Illini Hall	Bansal, S
37796: Quant Reasoning I course.						
37797	discussion-recitation	AD4	10:00 AM - 10:50 AM	TR	room 243 Altgeld Hall	Weber, J
37797: Quant Reasoning I course.						
37798	discussion-recitation	AD5	11:00 AM - 11:50 AM	TR	room 152 Henry Administration Bldg	Weber, J
37798: Quant Reasoning I course.						
37805	discussion-recitation	AD6	02:00 PM - 02:50 PM	TR	room 343 Altgeld Hall	Stan, F
37805: Quant Reasoning I course.						
37806	discussion-recitation	AD7	03:00 PM - 03:50 PM	TR	room 145 Altgeld Hall	Stan, F
37806: Quant Reasoning I course.						
37791	lecture	AL1	11:00 AM - 11:50 AM	MW	room 314 Altgeld Hall	Tumanov, A; Ahlgren, A
37791: Quant Reasoning I course.						
37799	discussion-recitation	BD1	10:00 AM - 10:50 AM	TR	room 152 Henry Administration Bldg	Kim, Y
37799: Quant Reasoning I course.						
37801	discussion-recitation	BD3	01:00 PM - 01:50 PM	TR	room 148 Henry Administration Bldg	Snyder, J
37801: Quant Reasoning I course.						

37802	discussion-recitation	BD4	01:00 PM - 01:50 PM	TR	room 149 Henry Administration Bldg	Polanco Encarnacion, G
37802: Quant Reasoning I course.						
37803	discussion-recitation	BD5	02:00 PM - 02:50 PM	TR	room 148 Henry Administration Bldg	Cao, Z
37803: Quant Reasoning I course.						
37804	discussion-recitation	BD6	02:00 PM - 02:50 PM	TR	room 341 Altgeld Hall	Kim, Y
37804: Quant Reasoning I course.						
37792	lecture	BL1	02:00 PM - 02:50 PM	MW	room 314 Altgeld Hall	Ahlgren, A; Harper, M
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 either MATH 244 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	Zaki, M
46053: Quant Reasoning II course.						
46054	discussion-recitation	AD2	09:00 AM - 09:50 AM	TR	room 243 Altgeld Hall	Zaki, M
46054: Quant Reasoning II course.						
46055	discussion-recitation	AD3	09:00 AM - 09:50 AM	TR	room 40 Allen Residence Hall	Eckhardt, C
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 154 Henry Administration Bldg	Eckhardt, C

46056: Quant Reasoning II course.						
46057	discussion-recitation	AD5	01:00 PM - 01:50 PM	TR	room 443 Altgeld Hall	Rettberg, R
46057: Quant Reasoning II course.						
46058	discussion-recitation	AD6	02:00 PM - 02:50 PM	TR	room 152 Henry Administration Bldg	Rettberg, R
46058: Quant Reasoning II course.						
46059	discussion-recitation	AD7	11:00 AM - 12:50 PM	TR	room 159 Altgeld Hall	Wenger, P
46059: Quant Reasoning II course.						
46059: Departmental Approval Required For Merit Workshop students only. Departmental approval required. For further information see http://www.math.uiuc.edu/timetable/ .						
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	Lior, D
46061: Quant Reasoning II course.						
46062	discussion-recitation	BD2	09:00 AM - 09:50 AM	TR	room 347 Altgeld Hall	Lior, D
46062: Quant Reasoning II course.						
46063	discussion-recitation	BD3	10:00 AM - 10:50 AM	TR	room 443 Altgeld Hall	Morton, D
46063: Quant Reasoning II course.						
46064	discussion-recitation	BD4	10:00 AM - 10:50 AM	TR	room 140 Henry Administration Bldg	Lee, C
46064: Quant Reasoning II course.						
46065	discussion-recitation	BD5	12:00 PM - 12:50 PM	TR	room 143 Henry Administration Bldg	Koukoulopoulos, D
46065: Quant Reasoning II course.						
46066	discussion-recitation	BD6	03:00 PM - 03:50 PM	TR	room 154 Henry Administration Bldg	Koukoulopoulos, D
46066: Quant Reasoning II course.						

46067	lecture	BL1	10:00 AM - 10:50 AM	MWF	room 134 Temple Hoyne Buell Hall	Nevins, T
46067: Quant Reasoning II course.						
46068	lecture-discussion	C1H	10:00 AM - 10:50 AM	MTWR	room 241 Altgeld Hall	Rouse, J
46068: Quant Reasoning II course.						
46068: Departmental Approval Required						
46075	lecture-discussion	C8	10:00 AM - 10:50 AM	MTWR	room 142 Henry Administration Bldg	Landquist, E
46075: Quant Reasoning II course.						
46075: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details.						
46069	discussion-recitation	CD1	09:00 AM - 09:50 AM	TR	room 152 Henry Administration Bldg	Kumbhat, M
46069: Quant Reasoning II course.						
46070	discussion-recitation	CD2	12:00 PM - 12:50 PM	TR	room 148 Henry Administration Bldg	Se, T
46070: Quant Reasoning II course.						
46071	discussion-recitation	CD3	01:00 PM - 01:50 PM	TR	room 152 Henry Administration Bldg	Tichenor, S
46071: Quant Reasoning II course.						
46072	discussion-recitation	CD4	02:00 PM - 02:50 PM	TR	room 141 Altgeld Hall	Chen, A
46072: Quant Reasoning II course.						
46073	discussion-recitation	CD5	03:00 PM - 03:50 PM	TR	room 148 Henry Administration Bldg	Tichenor, S
46073: Quant Reasoning II course.						
47543	discussion-recitation	CD6	03:00 PM - 03:50 PM	TR	room 343 Altgeld Hall	Sheshmani, A
47543: Quant Reasoning II course.						
46074	lecture	CL1	03:00 PM - 03:50 PM	MWF	room 180 Bevier Hall	Kutzarova, D
46074: Quant Reasoning II course.						

47216	lecture-discussion	F1H	02:00 PM - 02:50 PM	MTWR	room 154 Henry Administration Bldg	Dunfield, N
47216: Quant Reasoning II course.						
47216: Departmental Approval Required						
46076	lecture-discussion	X8	12:00 PM - 12:50 PM	MTWR	room 152 Henry Administration Bldg	McCullough, J
46076: Quant Reasoning II course.						
46076: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ 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			Leininger, C
37808: Departmental Approval Required						
37808: Requires concurrent registration in Math 231 D1H.						
48402	lecture-discussion	Q1H	ARRANGED			Merenkov, S
48402: Departmental Approval Required						
48402: Requires concurrent registration in Math 231 E1H.						

257 **Numerical Methods** credit: 3 hours.

Same as CS 257. See CS 257.

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

CRN	Type	Section	Time	Days	Location	Instructor
31257	lecture-discussion	M	12:30 PM - 01:45 PM	TR	room 1404 Siebel Center for Comp Sci	Olson, L
31257: Quant Reasoning II course.						

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 156 Henry Administration Bldg	Malkin, A
48596	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 156 Henry Administration Bldg	Malkin, A
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 http://www.math.uiuc.edu/timetable/ for details.						
48604	lecture-discussion	G1	03:00 PM - 03:50 PM	MWF	room 156 Henry Administration Bldg	Tumanov, A
48606	laboratory-discussion	G8	03:00 PM - 03:50 PM	MWF	room 239 Altgeld Hall	Uhl, J
48606: Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details.						
48600	lecture-discussion	N1	10:30 AM - 11:50 AM	TR	room 245 Altgeld Hall	Stolarsky, K
48598	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 156 Henry Administration Bldg	Wu, J

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 156 Henry Administration Bldg	Nikolaev, I
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 http://www.math.uiuc.edu/timetable/ for details.						
48608	lecture-discussion	X1	12:00 PM - 12:50 PM	MTWR	room 245 Altgeld Hall	Erdogan, M

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			Appuhn, C; Sinick, J
37812: Departmental Approval Required						
37812: Students from Math 220 Mathematica sections may enroll in this section.						
37814	laboratory-discussion	Q	ARRANGED			Sheikh, N; Uhl, J
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			McCullough, J
37815: Departmental Approval Required						
37815: Students from Math 241 Mathematica sections may enroll in this section.						
37816	laboratory-discussion	U	ARRANGED			Uhl, J; Kutzarova, D
37816: Departmental Approval Required						

37816: Students from Math 285 Mathematica sections may enroll in this section.						
37817	laboratory-discussion	V	ARRANGED			Kirov, R; Avsec, S
37817: Departmental Approval Required						
37817: Students from Math 225 Mathematica sections may enroll in this section.						
37818	laboratory-discussion	W	ARRANGED			Schultz, A
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.						

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	Ahlgren, S
37894: Quant Reasoning II course.						
37895	lecture-discussion	D1	11:00 AM - 11:50 AM	MWF	room 143 Henry Administration Bldg	Ahlgren, S
37895: Quant Reasoning II course.						
37896	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 341 Altgeld Hall	Lerman, E
37896: Quant Reasoning II course.						
37898	lecture-discussion	G1	03:00 PM - 03:50 PM	MWF	room 149 Henry Administration Bldg	Aramayona Delgado, J

37898: Quant Reasoning II course.						
37893	lecture-discussion	X1H	12:00 PM - 12:50 PM	MWF	room 154 Henry Administration Bldg	D'Angelo, J
37893: Quant Reasoning II course.						
37893: Departmental Approval RequiredRequires department approval.						

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

Course is identical to MATH 347 except for the additional writing component. Approved for both letter and S/U grading. 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	Rezk, C
37899: Advanced Composition, and Quant Reasoning II course.						

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	Hildebrand, A
37902: For students who will take Course 1 of the National Actuarial Exam. 1 hour credit only.						
37903	conference	Y	ARRANGED			
37903: Instructor Approval RequiredInstructor approval required.						
37904	conference	Z	07:00 PM - 08:50 PM	T	room 245 Altgeld Hall	Dai, L
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
37906	lecture-discussion	D1	11:00 AM - 11:50 AM	MWF	room 243 Altgeld Hall	Ash, C
37906: Quant Reasoning II course.						

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	Tolman, S
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	Tolman, S
37928: Quant Reasoning II course.						

37928: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
37929	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 147 Altgeld Hall	Tolman, S
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	Tolman, S
37931: Quant Reasoning II course.						
37931: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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	Mortensen, K
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	Mortensen, K
37934: Quant Reasoning II course.						
37934: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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

Presents selected topics in mathematics that are related to the content of secondary school mathematics programs; provides background for enrichment topics for secondary school students. Subject matter varies with the instructor. 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
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37935	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 143 Altgeld Hall	Smith, K
37935: Quant Reasoning II course.						
37935: 3 hoursOpen to both undergraduate and graduate students.						
37936	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 143 Altgeld Hall	Smith, K
37936: Quant Reasoning II course.						
37936: 4 hoursInstructor Approval RequiredInstructor approval forms available in 313 Altgeld Hall.						

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 113 Davenport Hall	Heitz, A
36119	discussion-recitation	AD2	04:00 PM - 04:50 PM	T	room 113 Davenport Hall	Heitz, A
36123	lecture	AL1	09:00 AM - 09:50 AM	MWF	room 106 Lincoln Hall	Hildebrand, A

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 273.

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 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.

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	Vijay, S
37943: Quant Reasoning II course.						
37943: 3 hours Open to both undergraduate and graduate students.						
38722	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 148 Henry Administration Bldg	Vijay, S
38722: Quant Reasoning II course.						
38722: 4 hours Instructor Approval Required Instructor approval forms available in 221 Altgeld Hall beginning January 13, 2005.						

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
37957	lecture-discussion	A13	08:00 AM - 08:50 AM	MWF	room 245 Altgeld Hall	Bergvelt, M
37957: Quant Reasoning II course.						
37957: 3 hours Open 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 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
37962	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 245 Altgeld Hall	Krupinski, K
37962: Quant Reasoning II course.						
37962: 3 hours Open to both undergraduate and graduate students.						
37965	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 245 Altgeld Hall	Krupinski, K
37965: Quant Reasoning II course.						
37965: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
37967	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 245 Altgeld Hall	Manfroi, A
37967: Quant Reasoning II course.						
37967: 3 hours Open to both undergraduate and graduate students.						
37970	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 245 Altgeld Hall	Manfroi, A
37970: Quant Reasoning II course.						
37970: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
37984	lecture-discussion	E83	01:00 PM - 01:50 PM	MWF	room 245 Altgeld Hall	Schultz, A
37984: Quant Reasoning II course.						
37984: 3 hours Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details. Open to both undergraduate and graduate students.						
37986	lecture-discussion	E84	01:00 PM - 01:50 PM	MWF	room 245 Altgeld Hall	Schultz, A
37986: Quant Reasoning II course.						
37986: 4 hours Instructor Approval Required Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details. Instructor approval forms available in 313 Altgeld Hall.						
37980	lecture-discussion	F13	02:00 PM - 02:50 PM	MWF	room 156 Henry Administration Bldg	Muncaster, 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	Muncaster, R
37983: Quant Reasoning II course.						
37983: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
37972	lecture-discussion	M13	09:00 AM - 10:20 AM	TR	room 156 Henry Administration Bldg	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 156 Henry Administration Bldg	Haboush, W
37974: Quant Reasoning II course.						
37974: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
37976	lecture-discussion	N13	10:30 AM - 11:50 AM	TR	room 156 Henry Administration Bldg	Rosendal, C
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 156 Henry Administration Bldg	Rosendal, C
37979: Quant Reasoning II course.						
37979: 4 hours Instructor Approval Required Instructor approval forms available in 221 Altgeld Hall beginning January 13, 2005.						
37991	laboratory-discussion	Z83	ARRANGED			Schultz, A
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			Schultz, A
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.						

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
48281	lecture-discussion	F3H	02:00 PM - 02:50 PM	MWF	room 343 Altgeld Hall	Tyson, J
48281: Departmental Approval Required						
48281: 3 hours						
48282	lecture-discussion	F4H	02:00 PM - 02:50 PM	MWF	room 343 Altgeld Hall	Tyson, J
48282: Departmental Approval Required						
48282: 4 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 273; 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	C13	10:00 AM - 10:50 AM	MWF	room 145 Altgeld Hall	Kapovitch, I
37997: Quant Reasoning II course.						
37997: 3 hours Open to both undergraduate and graduate students.						
37999	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 145 Altgeld Hall	Kapovitch, I
37999: Quant Reasoning II course.						
37999: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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 consent of the department.

CRN	Type	Section	Time	Days	Location	Instructor
46016	lecture-discussion	A	10:00 AM - 10:50 AM	MWF	room 152 Henry Administration Bldg	Lerman, E
46016: 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	G13	03:00 PM - 03:50 PM	MWF	room 142 Henry Administration Bldg	Solecki, S
47169: 3 hours						
47170	lecture-discussion	G14	03:00 PM - 03:50 PM	MWF	room 142 Henry Administration Bldg	Solecki, S
47170: 4 hours Departmental Approval Required						

439 **Philosophy of Mathematics** credit: 3 or 4 hours.

Same as PHIL 439. See PHIL 439.

CRN	Type	Section	Time	Days	Location	Instructor
40541	lecture-discussion	G	02:00 PM - 02:50 PM	MWF	room 329 Gregory Hall	McCarthy, T
40541: 4 hours Graduate Section						
40542	lecture-discussion	UG	02:00 PM - 02:50 PM	MWF	room 329 Gregory Hall	McCarthy, T
40542: 3 hours Undergraduate Section						

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 154 Henry Administration Bldg	Barreiro, A
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 154 Henry Administration Bldg	Barreiro, A
39479: Quant Reasoning II course.						
39479: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
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.						

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	Laugesen, R

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	Laugesen, R
38019: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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
38021	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 142 Henry Administration Bldg	Junge, M
38021: Quant Reasoning II course.						
38021: 3 hours Open to both undergraduate and graduate students.						
38022	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 142 Henry Administration Bldg	Junge, M
38022: Quant Reasoning II course.						
38022: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
38024	lecture-discussion	E13	01:00 PM - 01:50 PM	MWF	room 143 Henry Administration Bldg	Mei, T
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	Mei, T
38025: Quant Reasoning II course.						
38025: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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	C13	10:00 AM - 10:50 AM	MWF	room 154 Henry Administration Bldg	Wu, J
38027: 3 hours Open to both undergraduate and graduate students.						
38028	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 154 Henry Administration Bldg	Wu, J
38028: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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	Miles, J
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	Miles, J
38031: Quant Reasoning II course.						
38031: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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
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31440	lecture-discussion	B3	09:00 AM - 09:50 AM	MWF	room 112 Transportation Bldg	Hirani, A
31440: 3 hours						
31443	lecture-discussion	B4	09:00 AM - 09:50 AM	MWF	room 112 Transportation Bldg	Hirani, A
31443: 4 hours						

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

Topics covered include divisibility, primes, congruences, quadratic reciprocity, and Farey sequences. 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	M13	09:00 AM - 10:20 AM	TR	room 149 Henry Administration Bldg	Zaharescu, A
38037: Quant Reasoning II course.						
38037: 3 hours Open to both undergraduate and graduate students.						
38040	lecture-discussion	M14	09:00 AM - 10:20 AM	TR	room 149 Henry Administration Bldg	Zaharescu, A
38040: Quant Reasoning II course.						
38040: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
38042	lecture-discussion	X13	12:00 PM - 12:50 PM	MWF	room 145 Altgeld Hall	Hildebrand, 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	Hildebrand, A
38044: Quant Reasoning II course.						
38044: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

455 **Numerical Methods for PDEs** credit: 3 or 4 hours.

Same as CS 455 and CSE 411. See CS 455.

CRN	Type	Section	Time	Days	Location	Instructor
39743	lecture-discussion	N3	12:30 PM - 01:45 PM	TR	room 1103 Siebel Center for Comp Sci	Bond, S
39743: 3 hours						
39744	lecture-discussion	N4	12:30 PM - 01:45 PM	TR	room 1103 Siebel Center for Comp Sci	Bond, S
39744: 4 hours						

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. 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	Bauer, R
38047: 3 hours						
38049	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 347 Altgeld Hall	Bauer, R
38049: 4 hours Instructor Approval Required						
38050	lecture-discussion	C13	10:00 AM - 10:50 AM	MWF	room 143 Altgeld Hall	Soukhov, A
38050: 3 hours Open to both undergraduate and graduate students.						
38052	lecture-discussion	C14	10:00 AM - 10:50 AM	MWF	room 143 Altgeld Hall	Soukhov, A
38052: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
38056	lecture-discussion	E13	01:00 PM - 01:50 PM	MWF	room 154 Henry Administration Bldg	Soukhov, A
38056: 3 hours Open to both undergraduate and graduate students.						
38058	lecture-discussion	E14	01:00 PM - 01:50 PM	MWF	room 154 Henry Administration Bldg	Soukhov, A

38058: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
38060	lecture-discussion	F13	02:00 PM - 02:50 PM	MWF	room 140 Henry Administration Bldg	Song, R
38060: 3 hours Open to both undergraduate and graduate students.						
38061	lecture-discussion	F14	02:00 PM - 02:50 PM	MWF	room 140 Henry Administration Bldg	Song, R
38061: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						
38063	lecture-discussion	G83	03:00 PM - 03:50 PM	MWF	room 24 Illini Hall	Carpenter, B
38063: 3 hours Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ 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 http://www.math.uiuc.edu/timetable/ for details. Open to both undergraduate and graduate students.						

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 161 Noyes Laboratory	Huebner, A
36140	discussion-recitation	AD2	04:00 PM - 04:50 PM	R	room 161 Noyes Laboratory	Huebner, A
36141	discussion-recitation	AD3	04:00 PM - 04:50 PM	W	room 161 Noyes Laboratory	Huebner, A
36142	discussion-recitation	AD4	03:00 PM - 03:50 PM	W	room 165 Noyes Laboratory	Huebner, A
36144	lecture	AL1	11:00 AM - 11:50 AM	MWF	room 101 Armory	Monrad, D
36145	discussion-recitation	BD1	03:00 PM - 03:50 PM	W	room 161 Noyes Laboratory	Recchia, A
36146	discussion-recitation	BD2	04:00 PM - 04:50 PM	T	room 370 Armory	Sue-Chee, S

36147	discussion- recitation	BD3	04:00 PM - 04:50 PM	W	room 138 Henry Administration Bldg	Recchia, A
48338	discussion- recitation	BD5	03:00 PM - 03:50 PM	T	room 370 Armory	Sue-Chee, S
36148	lecture	BL1	01:00 PM - 02:20 PM	TR	room 103 Mumford Hall	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
36152	lecture- discussion	G1G	10:00 AM - 10:50 AM	MWF	room 253 Mechanical Engineering Bldg	Stepanov, A
36151	lecture- discussion	G1U	10:00 AM - 10:50 AM	MWF	room 253 Mechanical Engineering Bldg	Stepanov, A

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	02:30 PM - 03:50 PM	TR	room 2 Illini Hall	Liang, F
36171	lecture- discussion	D1U	02:30 PM - 03:50 PM	TR	room 2 Illini Hall	Liang, F

468 **Topics in Applied Statistics** credit: 3 or 4 hours.
Same as STAT 430. See STAT 430.

CRN	Type	Section	Time	Days	Location	Instructor
36202	lecture	S1G	03:00 PM - 03:50 PM	MWF	room 147 Altgeld Hall	Monrad, D
36202: Markov Chains, Models						

36201	lecture	S1U	03:00 PM - 03:50 PM	MWF	room 147 Altgeld Hall	Monrad, D
36201: Markov Chains, Models						

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
46322	lecture	D1U	02:00 PM - 02:50 PM	MWF	room 223 Gregory Hall	Stepanov, A
36157	lecture-discussion	N1G	09:00 AM - 10:20 AM	TR	room 106 Lincoln Hall	Stepanov, A
36155	lecture-discussion	N1U	09:00 AM - 10:20 AM	TR	room 106 Lincoln Hall	Stepanov, A

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	Q13	12:00 PM - 01:20 PM	TR	room 1320 Digital Computer Laboratory	Zhu, Y
38083: 3 hours Instructor approval forms available in 313 Altgeld Hall.						

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	10:00 AM - 10:50 AM	R	room 1111 Siebel Center for Comp Sci	Viswanathan, M

48335	discussion-recitation	AD2	11:00 AM - 11:50 AM	R	room 1111 Siebel Center for Comp Sci	Viswanathan, M
48337	discussion-recitation	AD3	03:00 PM - 03:50 PM	R	room 1111 Siebel Center for Comp Sci	Viswanathan, M
48339	discussion-recitation	AD4	04:00 PM - 04:50 PM	R	room 1111 Siebel Center for Comp Sci	Viswanathan, M
31577	lecture	AL1	11:00 AM - 12:15 PM	WF	room 1310 Digital Computer Laboratory	Viswanathan, M
31577: 3 hours This section is for UNDERGRADUATE students.						

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	S13	02:30 PM - 03:50 PM	TR	room 124 Burrill Hall	Zhu, Y
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	Alexander, S
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	Alexander, S
38089: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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	Kostochka, A
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	Kostochka, A
38091: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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	E13	01:00 PM - 01:50 PM	MWF	room 140 Henry Administration Bldg	Vijay, S
38092: Quant Reasoning II course.						
38092: 3 hours Open to both undergraduate and graduate students.						
38093	lecture-discussion	E14	01:00 PM - 01:50 PM	MWF	room 140 Henry Administration Bldg	Vijay, S
38093: Quant Reasoning II course.						
38093: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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	Levinson, S; Fossum, R
47012: 3 hours						
47013	lecture-discussion	Q14	12:00 PM - 01:20 PM	TR	room 441 Altgeld Hall	Levinson, S; Fossum, R
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	Palmore, J
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	Palmore, J
38151: 4 hours Instructor Approval Required Instructor approval forms available in 313 Altgeld Hall.						

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
44789	lecture-discussion	B13	09:00 AM - 09:50 AM	MWF	room 141 Altgeld Hall	Palmore, J
44789: 3 hours Topic: Mathematical Issues in National Security II. See http://www.math.uiuc.edu/timetable/ for the full course description.						
45683	lecture-discussion	B14	09:00 AM - 09:50 AM	MWF	room 141 Altgeld Hall	Palmore, J
45683: 4 hours Departmental Approval Required Topic: Mathematical Issues in National Security II. See http://www.math.uiuc.edu/timetable/ for the full course description.						

41817	online	CIS	ARRANGED			Woods, D; Peressini, A
41817: 1 hoursAlgebra through ModelingModule 5 - Algebra through Modeling with the TI-83 Graphing Calculator Family. Academic Outreach restrictions and assessments apply, see http://www.outreach.uiuc.edu ; this section is for students in the CTER cohort.OnlineAO Tuition 413, and AO Fees 41.00 dollars.						
49587	online	DDS	ARRANGED			Woods, D; Peressini, A
49587: 1 hoursDiscrete Dynamical SystemsDiscrete Dynamical Systems for Mathematics Teachers-MODULE 11. Academic Outreach restrictions and assessments apply, see http://www.outreach.uiuc.edu ; this section is for students in a CTER Cohort.OnlineAO Tuition 413, and AO Fees 41.00 dollars.						
49576	online	DGG	ARRANGED			Woods, D; Peressini, A
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.OnlineAO Tuition 413, and AO Fees 41.00 dollars.						
49528	online	DGS	ARRANGED			Woods, D; Peressini, A
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 students in a CTER Cohort.OnlineAO Tuition 413, and AO Fees 41.00 dollars.						
49529	online	MG	ARRANGED			Woods, D; Peressini, A
49529: 1 hoursGeometric Measurement FormulasModule 15 - Geometric Measurement Formulas - A Teacher's Perspective. Academic Outreach restrictions and assessments apply, see http://www.outreach.uiuc.edu ; this section is for students in the CTER Cohort.OnlineAO Tuition 413, and AO Fees 41.00 dollars.						

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	10:00 AM - 11:20 AM	MW	room 101 Transportation Bldg	Vasudevan, S

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

CRN	Type	Section	Time	Days	Location	Instructor
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36198	lecture-discussion	M1G	11:00 AM - 11:50 AM	MWF	room 2 Illini Hall	Chen, Y
36197	lecture-discussion	M1U	11:00 AM - 11:50 AM	MWF	room 2 Illini Hall	Chen, Y

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	Bradlow, S

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	B1	09:00 AM - 09:50 AM	MWF	room 445 Altgeld Hall	McCarthy, R

504 **Non-commutative Rings** credit: 4 hours.

Structure of Artinian rings, Morita theory, radicals, Brauer groups, finiteness conditions, and other topics at the choice of the instructor. Prerequisite: MATH 501 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
48229	lecture-discussion	M1	09:00 AM - 10:20 AM	TR	room 441 Altgeld Hall	Fossum, R

505 **Homological Algebra** credit: 4 hours.

Definition and properties of the functors Ext and Tor; projective, injective, and flat modules; group extensions; dimensions of rings, and Hilbert theorem on syzygies. Prerequisite: MATH 501 or equivalent.

CRN	Type	Section	Time	Days	Location	Instructor
40559	lecture-discussion	D1	11:00 AM - 11:50 AM	MWF	room 347 Altgeld Hall	Mineyev, I

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	N1	10:30 AM - 11:50 AM	TR	room 447 Altgeld Hall	Haboush, W

521 **Riemannian Geometry** credit: 4 hours.

Local and global properties of Riemannian manifolds. Prerequisite: MATH 520.

CRN	Type	Section	Time	Days	Location	Instructor
40560	lecture-discussion	M1	09:00 AM - 10:20 AM	TR	room 343 Altgeld Hall	Alexander, S

522 **Lie Groups and Lie Algebras I** credit: 4 hours.

A general introduction to Lie groups and algebras and their representation theory. Theory of finite group representations, Lie groups as matrix groups, and as differentiable manifolds, Lie algebras as tangent spaces and as abstract objects, and their representations. Examples of the classical groups. May be repeated up to 8 hours. Prerequisite: Undergraduate linear algebra, abstract algebra, point set topology, differentiation on manifolds.

CRN	Type	Section	Time	Days	Location	Instructor
48963	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 445 Altgeld Hall	Bergvelt, M

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	E1	01:00 PM - 01:50 PM	MWF	room 441 Altgeld Hall	Ando, M

532 ***Analytic Theory of Numbers II*** credit: 4 hours.

Development of themes from MATH 531 and further topics chosen from additive number theory, asymptotic properties of multiplicative functions, circle method, diophantine approximation, lattice point problems, metric theory, modular forms, sieve theory. May be repeated. Prerequisite: MATH 531.

CRN	Type	Section	Time	Days	Location	Instructor
38176	lecture-discussion	N1	10:30 AM - 11:50 AM	TR	room 341 Altgeld Hall	Zaharescu, A

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	Boca, F

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
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38171	lecture-discussion	D1	11:00 AM - 11:50 AM	MWF	room 443 Altgeld Hall	Loeb, P
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551 ***Dynamical Systems Theory*** credit: 4 hours.

Course is an introduction to the study of dynamical systems. Students who intend to do research in nonlinear dynamics are encouraged to take this course. Specific topics will be chosen to illustrate the theory and use of techniques from global analysis and nonlinear dynamics such as (1) discrete dynamical systems, (2) global theory of ordinary differential equations, (3) Hamiltonian systems, (4) KAM theory, (5) bifurcation and stability, (6) Hopf index theory of vector fields, (7) Morse theory of gradient vector fields, (8) Lyapunov theory, (9) infinite dimensional dynamical systems, (10) structural stability. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38181	lecture-discussion	D1	11:00 AM - 11:50 AM	MWF	room 343 Altgeld Hall	Zharnitsky, V

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
39528	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 341 Altgeld Hall	Li, X

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	N1	10:30 AM - 11:50 AM	TR	room 141 Altgeld Hall	Kirr, E

557 ***Methods of Math Physics II*** credit: 4 hours.

Course covers several basic mathematical methods of wide use in physics and engineering. Topics will be selected from the following: integral equations, spectral theory and Hilbert spaces, inverse spectral theory, soliton and waterwave theory, asymptotic methods. Prerequisite: MATH 556 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
39530	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 443 Altgeld Hall	DeVille, R

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	E1	01:00 PM - 01:50 PM	MWF	room 447 Altgeld Hall	Sowers, 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	Q14	12:00 PM - 01:20 PM	TR	room 1320 Digital Computer Laboratory	Zhu, Y
	lecture-discussion	Q14	04:00 PM - 04:50 PM	R	room 141 Altgeld Hall	Zhu, Y

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	S14	02:30 PM - 03:50 PM	TR	room 124 Burrill Hall	Zhu, Y

571 **Model Theory** credit: 4 hours.

Techniques for constructing models, including compactness and Lowenheim-Skolem theorems, unions of elementary chains, and omitting types construction; categorical theories; ultraproducts; saturated models; quantifier

elimination; applications to algebraically closed fields, real closed fields, and other fundamental structures of mathematics. Prerequisite: MATH 570 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
38158	lecture-discussion	G1	03:00 PM - 03:50 PM	MWF	room 443 Altgeld Hall	Henson, C

573 Recursive Function Theory credit: 4 hours.

Various characterizations of the class of recursive (i.e., computable) functions; the Church-Turing thesis; unsolvability of the halting problem; the recursion theorem and the enumeration theorem; relative computability, the jump operation, and the arithmetical hierarchy; recursively enumerable sets; degrees of unsolvability; and the priority method. Prerequisite: MATH 570 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
43398	lecture-discussion	M1	09:00 AM - 10:20 AM	TR	room 345 Altgeld Hall	Rosendal, C

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	11:00 AM - 12:15 PM	TR	room 1302 Siebel Center for Comp Sci	Prabhakaran, M
41447: 4 hours						

582 Structure of Graphs credit: 4 hours.

Structure of graphs and properties of special classes of graphs. Degree sequences and reconstruction, structure of k-connected graphs, Hamiltonian cycles and circumference, planar graphs and their properties, graph minors, cycle coverings, matroidal and algebraic aspects of graphs. Prerequisite: MATH 580 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
40563	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 445 Altgeld Hall	West, D

587 Optimiz by Vector Space Methds credit: 4 hours.

Same as ECE 580. See ECE 580.

CRN	Type	Section	Time	Days	Location	Instructor
40719	lecture-discussion	D1	11:00 AM - 12:20 PM	MW	room 106B6 Engineering Hall	Meyn, S

588 **Optimization in Networks** credit: 4 hours.

Theory and methods for optimization over directed graphs; paths, cuts, flows, and potentials; matchings; PERT and CPM; max flow, min path, out-of-kilter, Hungarian, and other algorithms; nonlinear cost functionals; painting theory; and existence and duality. Prerequisite: MATH 241.

CRN	Type	Section	Time	Days	Location	Instructor
38194	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 441 Altgeld Hall	Balog, J

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
48217	lecture-discussion	BSO	10:00 AM - 10:50 AM	MWF	room 341 Altgeld Hall	Ruan, Z
48217: 4 hours Topic: Banach Spaces and Operator Spaces. See http://www.math.uiuc.edu/timetable/ for the full course description.						
48254	lecture-discussion	BSP	12:00 PM - 12:50 PM	MWF	room 148 Henry Administration Bldg	Sowers, R
48254: 2 hours Topic: Basics of Stochastic Processes. See http://www.math.uiuc.edu/timetable/ for the full course description. Meets 14-Jan-08 - 07-Mar-08.						
49463	lecture-discussion	DM2	02:00 PM - 02:50 PM	MWF	room 447 Altgeld Hall	Leininger, C
49463: 4 hours Topic: Differentiable Manifolds II. See http://www.math.uiuc.edu/timetable/ for the full course description.						
48983	lecture-discussion	ERM	02:30 PM - 03:50 PM	TR	room 24 Wohlers Hall	Gorvett, R
48983: 2 hours Topic: Enterprise Risk Management. See http://www.math.uiuc.edu/timetable/ for the full course description. Meets 10-Mar-08 - 30-Apr-08.						
49272	lecture-discussion	FM	10:30 AM - 11:50 AM	TR	room 154 Henry Administration Bldg	Gorvett, R

49272: 2 hoursTopic: Financial Mathematics. See http://www.math.uiuc.edu/timetable/ for the full course description.Meets 14-Jan-08 - 07-Mar-08.						
48719	lecture-discussion	IHF	03:00 PM - 03:50 PM	MWF	room 241 Altgeld Hall	Berndt, B
48719: 4 hoursTopic: Introduction to hypergeometric functions with applications to number theory and combinatorics. See http://www.math.uiuc.edu/timetable/ for the full course description.						
49352	lecture-discussion	IPC	02:00 PM - 03:20 PM	TR	room 443 Altgeld Hall	Kerman, E
49352: 2 hoursTopic: Introduction to Pseudoholomorphic Curves. See http://www.math.uiuc.edu/timetable/ for the full course description.Meets 14-Jan-08 - 07-Mar-08.						
48255	lecture-discussion	IRF	12:00 PM - 12:50 PM	MWF	room 447 Altgeld Hall	Song, R
48255: 2 hoursTopic: Introduction to Random Fragmentation and Coagulation Processes. See http://www.math.uiuc.edu/timetable/ for the full course description.Meets 10-Mar-08 - 30-Apr-08.						
39575	lecture-discussion	LC	10:30 AM - 11:50 AM	TR	room 441 Altgeld Hall	Dutta, S
39575: 4 hoursTopic: Local Cohomology. See http://www.math.uiuc.edu/timetable/ for the full course description.						
48222	lecture-discussion	MI	02:00 PM - 02:50 PM	MWF	room 347 Altgeld Hall	Van Den Dries, L
48222: 4 hoursTopic: Motivic Integration. See http://www.math.uiuc.edu/timetable/ for the full course description.						
49509	lecture-discussion	MQM	09:00 AM - 09:50 AM	MWF	room 441 Altgeld Hall	Hundertmark, D
49509: 4 hoursTopic: Mathematical Quantum Mechanics. See http://www.math.uiuc.edu/timetable/ for the full course description.						
48258	lecture-discussion	PLP	01:00 PM - 01:50 PM	MWF	room 241 Altgeld Hall	Furedi, Z
48258: 2 hoursTopic: Polytopes and Lattice Points. See http://www.math.uiuc.edu/timetable/ for the full course description.Meets 10-Mar-08 - 30-Apr-08.						
43500	lecture-discussion	RT	12:00 PM - 12:50 PM	MWF	room 143 Henry Administration Bldg	Solecki, S
43500: 4 hoursTopic: Ramsey Theory: Finite or Infinite. See http://www.math.uiuc.edu/timetable/ for the full course description.						
40654	lecture-discussion	TV	12:00 PM - 01:20 PM	TR	room 141 Altgeld Hall	Schenck, H
40654: 4 hoursTopic: Toric Varieties. See http://www.math.uiuc.edu/timetable/ for the full course description.						

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
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 http://www.math.uiuc.edu/timetable/ for the full course description.						

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.						