

Course Schedule - Fall 2008

Statistics

100 **Statistics** credit: 3 hours.

First course in probability and statistics at a precalculus level; emphasizes basic concepts, including descriptive statistics, elementary probability, estimation, and hypothesis testing in both nonparametric and normal models. Same as MATH 161. Credit is not given for both STAT 100 and any one of the following: ECON 202, PSYC 235, or SOC 485. Prerequisite: MATH 012.

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

Students who have completed a year of Calculus should enroll in STAT 400 instead of STAT 100.

CRN	Type	Section	Time	Days	Location	Instructor
52534	lecture-discussion	A1	08:00 AM - 08:50 AM	MWF	room 213 Gregory Hall	Patterson, J
52534: Quant Reasoning I course.						
48303	lecture	B1	11:00 AM - 11:50 AM	MWF	room 114 Transportation Bldg	Agniel, D
48303: Quant Reasoning I course.						
34973	lecture-discussion	C1	12:00 PM - 01:20 PM	TR	room 2 Education Bldg	Fireman, E
34973: Quant Reasoning I course.						
35051	lecture-discussion	E1	01:00 PM - 01:50 PM	MWF	room 120 Architecture Bldg	Hirtz, N
35051: Quant Reasoning I course.						
35627	lecture-discussion	M1	09:00 AM - 10:20 AM	TR	room 314 Altgeld Hall	Fireman, E
35627: Quant Reasoning I course.						
41819	lecture-discussion	N1	09:00 AM - 09:50 AM	MWF	room 100 Materials Science and Eng Bld	Monrad, D
41819: Quant Reasoning I course.						
35686	lecture-discussion	S1	02:30 PM - 03:50 PM	TR	room 100 Gregory Hall	Fireman, E
35686: Quant Reasoning I course.						
35041	lecture-discussion	TA	09:00 AM - 09:50 AM	MWF	room 163 Noyes Laboratory	Gan, L
35041: Quant Reasoning I course.						

200 **Statistical Analysis** credit: 3 hours.

Principles in statistical design and analysis motivated by real case studies. Statistical computing is introduced and used for data analysis. Theory and techniques include survey sampling, hypothesis testing, contingency tables, Poisson models, regression analysis, and response surface analysis. The vital role of statistics in science is illustrated by case studies, and students learn principles related to study design, data collection, data presentation, and statistical computing, as well as technical writing and communication skills.

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

CRN	Type	Section	Time	Days	Location	Instructor
43148	lecture-discussion	B1	09:00 AM - 09:50 AM	MWF	room 1 Illini Hall	Douglas, J
43148: Discovery, and Quant Reasoning I course. First year Discovery Program course. Registration restricted to freshmen. Students should enroll in only one Discovery course.						
51802	lecture-discussion	G4	10:00 AM - 10:50 AM	MWF	room 1 Illini Hall	Fan, Z
51802: Quant Reasoning I course.						
49228	lecture-discussion	R1	01:00 PM - 01:50 PM	MWF	room 1 Illini Hall	Condon, E
49228: Quant Reasoning I course.						
46962	lecture-discussion	S1	03:00 PM - 03:50 PM	MWF	room 331 Armory	Qu, P
46962: Quant Reasoning I course. Statistical Analysis for Biological Sciences						

390 **Individual Study** credit: 1 or 2 hours.

May be repeated to a maximum of 8 hours. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10189	independent study		ARRANGED			
10189: Instructor Approval Required						

391 **Honors Individual Study** credit: 1 or 2 hours.

May be repeated to a maximum of 8 hours. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10194	independent study		ARRANGED			

400 Statistics and Probability I credit: 4 hours.

Introduction to mathematical statistics that develops probability as needed; includes the calculus of probability, random variables, expectation, distribution functions, central limit theorem, point estimation, confidence intervals, and hypothesis testing. Offers a basic one-term introduction to statistics and also prepares students for STAT 410. Same as MATH 463. Prerequisite: MATH 241 or equivalent.

Students must register for one discussion and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
33412	discussion-recitation	AD1	03:00 PM - 03:50 PM	T	room 243 Mechanical Engineering Bldg	Bawawana, B
33374	discussion-recitation	AD2	03:00 PM - 03:50 PM	R	room 370 Armory	Bawawana, B
33472	discussion-recitation	AD3	04:00 PM - 04:50 PM	W	room 138 Henry Administration Bldg	Bawawana, B
49239	lecture-discussion	AD4	03:00 PM - 03:50 PM	W	room 140 Burrill Hall	Yang, J
49241	lecture-discussion	AD5	03:00 PM - 03:50 PM	R	room 140 Burrill Hall	Hsu, Y
35030	lecture	AL1	10:00 AM - 10:50 AM	MWF	room 116 Roger Adams Laboratory	Wang, Y
46963	discussion-recitation	BD1	03:00 PM - 03:50 PM	T	room 141 Altgeld Hall	Liu, Y
34985	discussion-recitation	BD2	03:00 PM - 03:50 PM	W	room 441 Altgeld Hall	Liu, Y
35008	discussion-recitation	BD3	04:00 PM - 04:50 PM	W	room 145 Armory	Liu, Y
49234	lecture-discussion	BD4	04:00 PM - 04:50 PM	W	room 229 Natural History Bldg	Yang, J
49236	lecture-discussion	BD5	03:00 PM - 03:50 PM	T	room 245 Altgeld Hall	Hsu, Y
35005	lecture	BL1	01:00 PM - 02:20 PM	TR	room 101 Armory	Wang, Y

409 Actuarial Statistics II credit: 4 hours.

Continuation of STAT 408. Examines parametric point and interval estimation, including maximum likelihood estimation, sufficiency, completeness, and Bayesian estimation; hypothesis testing; linear models; regression and correlation. Same as MATH 409. Credit is not given for both STAT 409 and STAT 410. Prerequisite: STAT 408.

CRN	Type	Section	Time	Days	Location	Instructor
33408	discussion-recitation	AD1	03:00 PM - 03:50 PM	T	room 341 Altgeld Hall	Chen, S
33331	discussion-recitation	AD2	04:00 PM - 04:50 PM	T	room 441 Altgeld Hall	Chen, S
45594	discussion-recitation	AD3	02:00 PM - 02:50 PM	T	room 343 Altgeld Hall	Chen, S
35097	lecture	AL1	02:00 PM - 02:50 PM	MWF	room 319 Gregory Hall	Stepanov, A

410 *Statistics and Probability II* credit: 3 or 4 hours.

Continuation of STAT 400. Includes moment-generating functions, transformations of random variables, normal sampling theory, sufficiency, best estimators, maximum likelihood estimators, confidence intervals, most powerful tests, unbiased tests, and chi-square tests. Same as MATH 464. 3 undergraduate hours. 4 graduate hours. Credit is not given for both STAT 410 and STAT 409. Prerequisite: STAT 400; or STAT 100 and MATH 461.

CRN	Type	Section	Time	Days	Location	Instructor
35494	lecture-discussion	G4	10:00 AM - 10:50 AM	MWF	room 370 Armory	Stepanov, A
35494: 4 hours						
35707	lecture-discussion	U3	10:00 AM - 10:50 AM	MWF	room 370 Armory	Stepanov, A
35707: 3 hours						

420 *Methods of Applied Statistics* credit: 3 or 4 hours.

Systematic, calculus-based coverage of the more widely used methods of applied statistics, including simple and multiple regression, correlation, analysis of variance and covariance, multiple comparisons, goodness of fit tests, contingency tables, nonparametric procedures, and power of tests; emphasizes when and why various tests are appropriate and how they are used. Same as MATH 469. 3 undergraduate hours. 4 graduate hours. Prerequisite: STAT 408 or STAT 400; MATH 231 or equivalent; knowledge of basic matrix manipulations; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
35486	lecture-discussion	G4	09:00 AM - 10:20 AM	TR	room 229 Natural History Bldg	Stepanov, A
35486: 4 hours						
35711	lecture-discussion	U3	09:00 AM - 10:20 AM	TR	room 229 Natural History Bldg	Stepanov, A
35711: 3 hours						

425 **Applied Regression and Design** credit: 3 or 4 hours.

Explores linear regression, least squares estimates, F-tests, analysis of residuals, regression diagnostics, transformations, model building, factorial designs, randomized complete block designs, Latin squares, split plot designs. Computer work is an integral part of the course. 3 undergraduate hours. 4 graduate hours. Prerequisite: STAT 410.

CRN	Type	Section	Time	Days	Location	Instructor
30956	lecture-discussion	S1G	09:00 AM - 10:20 AM	TR	room 384 Armory	Ma, P
30956: 4 hours						
52528	lecture-discussion	S1U	09:00 AM - 10:20 AM	TR	room 384 Armory	Ma, P
52528: 3 hours						

429 **Time Series Analysis** credit: 3 or 4 hours.

Studies theory and data analysis for time series; examines auto-regressive moving average model building and statistical techniques; and discusses spectral model building and statistical analysis using windowed periodograms and Fast Fourier Transformations. Same as MATH 494. 3 undergraduate hours. 4 graduate hours. Prerequisite: STAT 410.

CRN	Type	Section	Time	Days	Location	Instructor
35477	lecture-discussion	G4	09:00 AM - 09:50 AM	MWF	room 241 Wohlers Hall	Shao, X
35477: 4 hours						
35715	lecture-discussion	U3	09:00 AM - 09:50 AM	MWF	room 241 Wohlers Hall	Shao, X
35715: 3 hours						

440 **Statistical Data Management** credit: 3 or 4 hours.

The critical elements of data storage, data cleaning, and data extractions that ultimately lead to data analysis are presented. Includes basic theory and methods of databases, auditing and querying databases, as well as data management and data preparation using standard large-scale statistical software. Students will gain competency in the skills required in storing, cleaning, and managing data, all of which are required prior to data analysis. 3 undergraduate hours. 4 graduate hours. Prerequisite: STAT 400 or STAT 409.

CRN	Type	Section	Time	Days	Location	Instructor
49774	lecture	M1G	11:30 AM - 12:50 PM	MW	room G8A Foreign Languages Bldg	Muyot, M

49774: 4 hours						
52527	lecture	M1U	11:30 AM - 12:50 PM	MW	room G8A Foreign Languages Bldg	Muyot, M
52527: 3 hours						

451 **Probability Theory** credit: 3 or 4 hours.
Same as MATH 461. See MATH 461.

CRN	Type	Section	Time	Days	Location	Instructor
33545	lecture-discussion	D13	11:00 AM - 11:50 AM	MWF	room 447 Altgeld Hall	Palmore, J
33545: 3 hours						
39143	lecture-discussion	D14	11:00 AM - 11:50 AM	MWF	room 447 Altgeld Hall	Palmore, J
39143: 4 hours Instructor Approval Required						
33561	lecture-discussion	E13	01:00 PM - 01:50 PM	MWF	room 147 Altgeld Hall	Siudeja, B
33561: 3 hours						
39144	lecture-discussion	E14	01:00 PM - 01:50 PM	MWF	room 147 Altgeld Hall	Siudeja, B
39144: 4 hours Instructor Approval Required						
39202	lecture-discussion	F13	02:00 PM - 02:50 PM	MWF	room 241 Altgeld Hall	Sowers, R
39202: 3 hours						
39203	lecture-discussion	F14	02:00 PM - 02:50 PM	MWF	room 241 Altgeld Hall	Sowers, R
39203: 4 hours Instructor Approval Required						
33571	laboratory-discussion	G83	03:00 PM - 03:50 PM	MWF	room 245 Altgeld Hall	Reznick, B
33571: 3 hours This section will be taught on Macintosh or Windows computers using Mathematica Interactive Courseware. Previous computer experience is not necessary. Students may also enroll in Mathematics 290Y. For further details see: http://www-cm.math.uiuc.edu/						
39146	laboratory-discussion	G84	03:00 PM - 03:50 PM	MWF	room 245 Altgeld Hall	Reznick, B
39146: 4 hours Instructor Approval Required						

510 **Mathematical Statistics I** credit: 4 hours.

Distributions, transformations, order-statistics, exponential families, sufficiency, delta-method, Edgeworth expansions; uniformly minimum variance unbiased estimators, Rao-Blackwell theorem, Cramer-Rao lower bound, information inequality; equivariance. Prerequisite: STAT 410.

CRN	Type	Section	Time	Days	Location	Instructor
30957	lecture-discussion	C1	10:00 AM - 10:50 AM	MWF	room 2 Illini Hall	Chen, Y

530 **Bioinformatics** credit: 4 hours.

Same as ANSC 543, CHBE 571, and MCB 571. See CHBE 571.

CRN	Type	Section	Time	Days	Location	Instructor
46986	lecture	A	01:00 PM - 02:20 PM	TR	room ARR Illini Hall	Ma, P
46986: Will be held in 113 Illini Hall. Basic problems, algorithms and data analysis approaches in computational biology. Topics include sequence alignment, gene annotation, microarray analysis, transcription regulation, comparative genomics, proteomics, regulatory network, and SNP analysis. Statistical models and algorithms covered include mixture model, hidden Markov model, EM algorithm and Gibbs sampler, clustering and classification methods						

542 **Statistical Learning** credit: 4 hours.

Modern techniques of predictive modeling, classification, and clustering are discussed. Examples of these are linear regression, nonparametric regression, kernel methods, regularization, cluster analysis, classification trees, neural networks, boosting, discrimination, support vector machines, and model selection. Applications are discussed as well as computation and theory. Prerequisite: STAT 410 and STAT 425.

CRN	Type	Section	Time	Days	Location	Instructor
50222	lecture	L1	10:30 AM - 11:50 AM	TR	room 2 Illini Hall	Liang, F

552 **Theory of Probability II** credit: 4 hours.

Same as MATH 562. See MATH 562.

CRN	Type	Section	Time	Days	Location	Instructor
33568	lecture-discussion	E1	01:00 PM - 01:50 PM	MWF	room 447 Altgeld Hall	Bauer, R

553 **Probability and Measure I** credit: 4 hours.

Measures and probabilities; integration and expectation; convergence theorems and inequalities for integrals and expectations; independence; convergence in probability, almost surely, and mean; Three Series Theorem; laws of large numbers. Credit is not given for both STAT 553 and either MATH 540 or MATH 561. Prerequisite: MATH 447 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
46969	lecture-discussion	A1	02:00 PM - 02:50 PM	MWF	room 2 Illini Hall	Monrad, D

555 **Applied Stochastic Processes** credit: 4 hours.
Same as MATH 564. See MATH 564.

CRN	Type	Section	Time	Days	Location	Instructor
33552	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 443 Altgeld Hall	Song, R

563 **Information Theory** credit: 4 hours.
Same as CS 578 and ECE 563. See ECE 563.

CRN	Type	Section	Time	Days	Location	Instructor
37141	discussion-recitation	A	08:00 AM - 09:50 AM	M	room 163 Everitt Elec and Comp Engr Lab	Coleman, T
	discussion-recitation	A	09:00 AM - 09:50 AM	W	room 163 Everitt Elec and Comp Engr Lab	Coleman, T
: 4 hours						

571 **Multivariate Analysis** credit: 4 hours.
Inference in multivariate statistical populations emphasizing the multivariate normal distribution; derivation of tests, estimates, and sampling distributions; and examples from the natural and social sciences. Prerequisite: STAT 410 and MATH 415, or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
39922	lecture	A	02:30 PM - 03:50 PM	TR	room 2 Illini Hall	Marden, J

587 **Hierarchical Linear Models** credit: 4 hours.

Same as PSYC 587 and EPSY 587. See EPSY 587.

CRN	Type	Section	Time	Days	Location	Instructor
47573	lecture-discussion	A	10:00 AM - 11:50 AM	TR	room 130 Wohlers Hall	Anderson, C

590 **Reading Course** credit: 4 or 8 hours.

Directed reading on various topics. May be repeated with approval. Subject to approval by the student's advisor.

Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10198	independent study		ARRANGED			
10198: Instructor Approval Required						
50912	independent study	FL	ARRANGED			Liang, F

593 **STAT Internship** credit: 0 to 8 hours.

Supervised, off-campus experience in a field in which statistical science plays an important role. Approved for both letter and S/U grading. Prerequisite: STAT 425 and consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
52330	conference	INT	ARRANGED			

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
10203	independent study		ARRANGED			
10203: Instructor Approval Required						