STUDENT: _____ STUDENT ID NUMBER: _____

KUTZTOWN UNIVERSITY

COLLEGE OF LIBERAL ARTS & SCIENCES • BS • MATHEMATICS

Academic Plan: ULASMATS **Version 2118-Fall 2011** **Effective Date: August 29, 2011**

PROGRAM REQUIREMENTS FOR B.S. IN MATHEMATICS

Major Program: 48 cr			
1. Core Courses: 27 cr	**CR**	**GR**	**CAC**
MAT 181: Calculus I	4		
MAT 182: Calculus II	4		
MAT 224: Foundations Higher Math	3		WI
MAT 260: Linear Algebra I	3		
MAT 283: Calculus III	4		
MAT 301: Probability & Statistics I	3		
MAT 311: Abstract Algebra I	3		
MAT 380: Seminar in Math	3		WI

Specialization I: Pure Mathematics			
2. Required Courses: 12 cr	**CR**	**GR**	**CAC**
Choose four courses from the following:			
MAT 312: Abstract Algebra II			
MAT 330: Theory of Numbers			
MAT 351: Real Analysis I			
MAT 352: Real Analysis II			
MAT 400: Complex Variables			
MAT 431: Topology			

Specialization I: Applied Mathematics			
2. Required Courses: 12 cr	**CR**	**GR**	**CAC**
Choose four courses from the following:			
MAT 302: Probability & Statistics II			
MAT 332: Numerical Analysis			
MAT 340: Differential Equations I			
MAT 361: Operations Research I			
MAT 362: Operations Research II			
MAT 403: Analysis of Data Sets			

Requirements for an Operations Research Certificate: MAT 361 & 362*
Requirements for a Statistics Certificate: MAT 301, 302 & 403*

* Grades in these courses must be a B or above in order to receive a certificate.

NOTE: Internal Transfer: 2.25 GPA needed

General Electives in Mathematics: 9 cr			
Any three additional MAT courses, at least two at the 300-level or higher	**CR**	**GR**	**CAC**

Please see the list of electives and proposed schedule for times and semesters each elective will be offered.

Free Electives (Not counted towards Gen Ed): 15 cr			
Any five additional courses	**CR**	**GR**	**CAC**

Students are encouraged to consider a minor in a subject area of their choice. Courses for a minor may be counted here.

The required courses below must be taken and count towards General Education. The appropriate General Education section for each course is listed on the reverse side.

Required General Education Courses: 20 cr			
1. Natural Science Choose (a) or (b) 8 cr	**CR**	**GR**	**CAC**
(a) CHM 100: General Chemistry I			
CHM 102: General Chemistry II			
(b) PHY 100: Physics I			
PHY 102: Physics II			
2. Humanities 6 cr			
PHI 140CT: Symbolic Logic			CT
WRI 205WI: Scientific Writing			WI
3. Free Electives 6 cr			
CSC 135: Computer Science I			
CSC 136CP: Computer Science II or higher			
4. Internship – optional			
MAT 280: Cooperative Internship			

ADDITIONAL NOTES: 120 credits are required to graduate

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COLLEGE OF LIBERAL ARTS & SCIENCES • BS • MATHEMATICS

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GENERAL EDUCATION

I. UNIVERSITY CORE (12 credits)	RC	CR	GR
A. Oral Communication: COM 10 or above			
COURSE:	3		
B. Written Communication: ENG 23, 24, or 25			
COURSE:	3		
C. Mathematics: MAT 17 or above			
COURSE:	3		
D. Wellness: Any 3-credit HEA course			
COURSE:	3		

II. UNIVERSITY DISTRIBUTION (15 credits)	RC	CR	GR	CAC
A. Natural Sciences: Any lab or non-lab course with prefix AST, BIO, CHM, ENV, GEL, MAR, NSE, or PHY; or certain GEG courses (see note at right)				
COURSE: CHM 100 OR PHY 100 (suggested)	3			
B. Social Sciences: Any course with prefix ANT, CRJ, ECO, HIS, INT, MCS, PSY, POL, SOC, SSE, or SWK; or certain GEG courses (see note at right)				
COURSE:	3			
C. Humanities: Any course with prefix ENG, HUM, PAG, PHI, WRI, WGS, or Modern Language				
COURSE:	3			
D. Arts: Any course with prefix ARC, ARH, ART, CDE, CDH, CFT, DAN, FAR, FAS, MUP, MUS, or THE				
COURSE:	3			
E. Free Elective: Any course carrying university credit				
COURSE:	3			

III. COMPETENCIES ACROSS THE CURRICULUM	RC	CR	GR	CAC
A. Writing Intensive (**WI**) (9 credits)				
COURSE: WRI 205 (suggested)	3			**WI**
COURSE: MAT 224 (suggested)	3			**WI**
COURSE: MAT 380 (suggested)	3			**WI**
B. Quantitative Literacy (**QL**) (3 credits) OR Computer-Intensive (**CP**) (3 credits)				
COURSE:	3			
C. Visual Literacy (**VL**) (3 credits) OR Communication-Intensive (**CM**) (3 credits)				
COURSE:	3			
D. Cultural Diversity (**CD**) (3 credits)				
COURSE:	3			**CD**
E. Critical Thinking (**CT**) (3 credits)				
COURSE: PHI 140CT (suggested)	3			**CT**

A Competency Across the Curriculum (CAC) course is not a separate course, but rather an overlay that is "double counted" as fulfilling both the CAC requirement and another requirement in either General Education (except for the University Core), the major, or the minor.

RC = Minimum required number of credits
CR = Credits earned (fill in number of credits)
GR = Grade earned (fill in letter grade)
CAC = Competency Across the Curriculum (fill in designation)

NOTE: GEG courses with a lab and 40, 322, and 323 may be used in II.A. and GEG courses 40, 204, 274, 304, 322, 323, 324, 347, 380, and 394 may NOT be used in II.B.

IV. COLLEGE DISTRIBUTION (33 credits)	RC	CR	GR	CAC
A. Natural Science, Mathematics, and Computer Science# (6 credits): Choose one course in each subcategory.				
1. Natural Science with Lab: AST, BIO, CHM, ENV, GEL, PHY, or MAR; or GEG (see note at right)				
COURSE: CHM 102 OR PHY 102 (suggested)	3			
2. Elective: MAT, CSC, AST, BIO, CHM, ENV, GEL, PHY, or MAR; or GEG (see note at right)				
COURSE: BIO	3			
B. Social Science (9 credits): Choose one course in each subcategory.				
1. Elective: HIS, ANT, GEG (see note at right), or POL				
COURSE:	3			
2. Elective: PSY, SOC, CRJ, or SWK				
COURSE:	3			
3. Elective: ANT, HIS, ECO, GEG (see note at right), PSY, POL, SOC, CRJ, or SWK				
COURSE:	3			

	RC	CR	GR	CAC
C. Humanities (9 credits): Choose one course in each subcategory.				
1. Elective: PAG*, ENG, WRI, or HUM				
COURSE: WRI 205WI (suggested)	3			
2. Elective: Modern Language (103 or above) or PHI				
COURSE: PHI 140CT (suggested)	3			
3. Elective: PAG*, ENG, WRI, HUM, Modern Language (103 or above), or PHI				
COURSE:	3			
D. Free Electives (9 credits): Choose any university courses that count toward graduation.				
COURSE:	3			
COURSE:	3			
COURSE:	3			

NOTE: GEG courses with a lab and 40, 322, and 323 may be used in IV.A. and GEG courses 40, 204, 274, 304, 322, 323, 324, 347, 380, and 394 may NOT be used in IV.B.

Students in the College of Liberal Arts and Sciences are required to take at least one course in Biological Science (BIO) and at least one course in Physical Science (AST, CHM, ENV, GEL, PHY, MAR, GEG with lab, or GEG 40, GEG 322, or GEG 323), and at least one of which must be a lab (each course may be counted in either sections II.A or IV.A).

* Excludes PAG 011 and PAG 012

SUGGESTED COURSE SEQUENCE FOR THE B.S. IN MATHEMATICS: PURE SPECIALIZATION,
KUTZTOWN UNIVERSITY OF PENNSYLVANIA

University Core: UC; University Distribution: UD; College Distribution: CD

	FALL	SPRING
FRESHMAN 32 CREDITS	MAT 181 (4) CSC 135 (UD II-E) (3) ENG 23 (UC 1-B) (3) HIS/PSY/POL/etc. (UD II-B) (3) ART/MUS/THE/etc. (UD II-D) (3) (16 credits)	MAT 182 (4) CSC 136 or 241 (CP) (CD IV-D) (3) COM 10 (UC I-A) (3) PHI 140 (CT) (UD II-C) (3) HIS/ANT/GEG*/POL (CD IV-B.1) (3) (16 credits)
SOPHOMORE 33 CREDITS	MAT 283 (4) MAT 224 (WI) (UC I-C) (3) CHM/PHY 100 (UD II-A.1) (4) Minor / Free Elective (CD IV-D-2) (3) BIO 10 (CD IV-A.2) (3) (17 credits)	MAT 260 MAT 301 (3) CHM/PHY 102 (4) Minor / Free Elective (CD IV-D-3) (3) WRI 205 (WI) (CD IV-C.1) (3) (16 credits)
JUNIOR 30 CREDITS	MAT 311 (3) MAT 351 (3) Soc. Science Elective (CD IV-B.3) (3) Humanities Elective (CD IV-C.2) (3) Minor Course or Free Elective (3) (15 credits)	Math Specialization[1] (3) Math Specialization[1] (3) Minor Course or Free Elective (3) HEA 102 (UC I-D) (3) Humanities Elective (CD IV-C.3) (3) (15 credits)
SENIOR 25-27 CREDITS	MAT 380 (WI) (3) Math Elective (3) Minor Course or Free Elective (3) Minor Course or Free Elective (1-3) PSY/SOC/CRJ/SWK (CD IV-B.2) (3) (13-15 credits)	Math Specialization[1] (3) Math Specialization[1] (3) Math Elective (3) Minor Course or Free Elective (3) (12 credits)

[1] Applicable courses include: MAT 312, 321, 330, 352, 369/291, 400, and 431.

September 30, 2014

SUGGESTED COURSE SEQUENCE FOR THE B.S. IN MATHEMATICS: APPLIED SPECIALIZATION, KUTZTOWN UNIVERSITY OF PENNSYLVANIA

University Core: UC; University Distribution: UD; College Distribution: CD

	FALL	SPRING
FRESHMAN 32 CREDITS	MAT 181 (4) CSC 135 (UD II-E) (3) ENG 23 (UC 1-B) (3) HIS/PSY/POL/etc. (UD II-B) (3) ART/MUS/THE/etc. (UD II-D) (3) (16 credits)	MAT 182 (4) CSC 136 or 241 (CP) (CD IV-D) (3) COM 10 (UC I-A) (3) PHI 140 (CT) (UD II-C) (3) HIS/ANT/GEG*/POL (CD IV-B.1) (3) (16 credits)
SOPHOMORE 33 CREDITS	MAT 283 (4) MAT 224 (WI) (UC I-C) (3) CHM/PHY 100 (UD II-A.1) (4) Minor / Free Elective (CD IV-D-2) (3) BIO 10 (CD IV-A.2) (3) (17 credits)	MAT 260 MAT 301 (3) CHM/PHY 102 (4) Minor / Free Elective (CD IV-D-3) (3) WRI 205 (WI) (CD IV-C.1) (3) (16 credits)
JUNIOR 30 CREDITS	Math Specialization[2] (3) MAT 311 (3) Soc. Science Elective (CD IV-B.3) (3) Humanities Elective (CD IV-C.2) (3) Minor Course or Free Elective (3) (15 credits)	MAT 351 (3) Math Specialization[2] (3) Minor Course or Free Elective (3) HEA 102 (UC I-D) (3) Humanities Elective (CD IV-C.3) (3) (15 credits)
SENIOR 25-27 CREDITS	MAT 380 (WI) (3) Math Specialization[2] (3) Minor Course or Free Elective (3) Minor Course or Free Elective (1-3) PSY/SOC/CRJ/SWK (CD IV-B.2) (3) (13-15 credits)	Math Specialization[2] (3) Math Elective (3) Math Elective (3) Minor Course or Free Elective (3) (12 credits)

[2] Applicable courses include: MAT 302, 332, 340, 361, 362, and 403.

September 30, 2014

SAMPLE COURSE SEQUENCE FOR A B.S. IN MATHEMATICS,
KUTZTOWN UNIVERSITY OF PENNSYLVANIA

This sample course sequence will apply to a Mathematics major choosing Specialization I: Pure Mathematics, with a minor in Computer Science: Software Development. This schedule would apply to a student intending to pursue graduate school.

	FALL	SPRING
FRESHMAN	MAT 181 CSC 135 PHY 100 ENG 23 HIS 14 (CD) (17 credits)	MAT 182 CSC 136 (CP) PHY 102 COM 10 PHI 140 (CT) (17 credits)
SOPHOMORE	MAT 283 MAT 224 (WI) BIO 10 CSC 125 FAR 20 (VL) (16 credits)	MAT 260 MAT 301 CSC 225 WRI 205 (WI) POL 10 (15 credits)
JUNIOR	MAT 302 MAT 311 MAT 351 PSY 11 ECO 10 (15 credits)	MAT 312 MAT 330 MAT 352 CSC 237 HEA 102 (15 credits)
SENIOR	MAT 380 (WI) MAT 340 MAT 291/369 CSC 354 GER 103 (15 credits)	MAT 321 MAT 400 CSC 341 GER 104 (12 credits)

September 30, 2014

SAMPLE COURSE SEQUENCE FOR A B.S. IN MATHEMATICS,
KUTZTOWN UNIVERSITY OF PENNSYLVANIA

This sample course sequence will apply to a Mathematics major choosing Specialization II: Applied Mathematics, with a minor in Economics. This schedule would apply to a student intending to pursue a job in industry, particularly one in the financial or actuarial sector.

	FALL	SPRING
FRESHMAN	MAT 181 CSC 135 PHY 100 ENG 23 HIS 14 (CD) (17 credits)	MAT 182 CSC 136 (CP) PHY 102 COM 010 PHI 140 (CT) (17 credits)
SOPHOMORE	MAT 283 MAT 224 (WI) ECO 11 BIO 10 ARH 24 (VL) (16 credits)	MAT 260 MAT 301 ECO 12 WRI 205 (WI) POL 10 (15 credits)
JUNIOR	MAT 302 MAT 305 MAT 311 ECO 205 SOC 10 (15 credits)	MAT 306 MAT 351 MAT 291 ECO 210 HEA 102 (15 credits)
SENIOR	MAT 380 (WI) MAT 361 MAT 403 ECO 345 GER 103 (15 credits)	MAT 332 MAT 362 ECO 360 GER 104 (12 credits)

September 30, 2014