



Bachelor of Science MATHEMATICS

Advisement Form 2010-2011

Name _____ ID _____

| Lower Division Requirements (34-35 units) | Un. | Instit. | Course | Units | Grade | Term | Prerequisites, GE and Comments |
|--|-----|---------|--------|-------|-------|------|---|
| MATH 150 Calculus I | 4 | | | | | | Prereq: Passing scores on the Calculus Placement Exam or MATH 105; GE: B3 |
| MATH 151 Calculus II | 4 | | | | | | Prereq: MATH 150 |
| MATH 230 Logic and Mathematical Reasoning | 3 | | | | | | GE: A3, B3 |
| MATH 240 Linear Algebra | 3 | | | | | | Prereq: MATH 151 |
| MATH 250 Calculus III | 3 | | | | | | Prereq: MATH 151 with a C or better |
| PHYS 200 General Physics I | 4 | | | | | | Prereq: MATH 150; GE: B1 |
| <i>Select PHYS 201 and an additional science course OR a two semester science sequence (7-8 units)</i> | | | | | | | |
| PHYS 201 General Physics II | 4 | | | | | | Prereq: PHYS 200; GE: B1 |
| Science Course | 3-4 | | | | | | |
| OR | | | | | | | |
| Science Sequence Course 1 | 4 | | | | | | |
| Science Sequence Course 2 | 3-4 | | | | | | |
| <i>Select one of the following:</i> | | | | | | | |
| COMP 105 Computer Programming Introduction (or) | 3 | | | | | | GE: B4 |
| COMP 150 Object-Oriented Programming | 4 | | | | | | Prereq: Programming experience; GE: B4 |
| <i>Select an additional computer science course:</i> | | | | | | | |
| COMP 150 or above (or) | 3-4 | | | | | | COMP 102 |
| Upper Division Requirements (20 units) | | | | | | | |
| MATH 300 Discrete Mathematics | 3 | | | | | | Prereq: MATH 230 |
| MATH 331 History of Mathematics | 3 | | | | | | GE: B3, D, UDIGE |
| MATH 350 Differential Equations and Dynamical Systems | 3 | | | | | | Prereq: MATH 250 (may be taken concurrently) |
| MATH 351 Real Analysis | 3 | | | | | | Prereq: MATH 240 & 250 |
| MATH 352 Probability and Statistics | 3 | | | | | | Prereq: MATH 151 |
| MATH 451 Complex Analysis | 3 | | | | | | Prereq: MATH 240 & 250 |
| MATH 499 Senior Colloquium | 1 | | | | | | Prereq: Senior standing; Repeatable. |
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| Electives in Major (9-13 units) <i>Courses selected below must be outside of your emphasis area. Students planning on teaching math have to choose MATH 492 (3 units) for field experience requirement. Other courses recommended for teaching careers are marked with *.</i> | | | | | | | |
| MATH 318 Mathematics for Secondary School Teachers * | 3 | | | | | | Prereq: MATH 150 |
| MATH 330 Mathematics and Fine Arts * | 3 | | | | | | Prereq: A passing score on the ELM exam or MATH 95, GE: B3, UDIGE |
| MATH/COMP/PHYS 345 Digital Imaging Processing | 3 | | | | | | Prereq: Consent of instructor; GE: B1, B4, UDIGE |
| MATH 354 Analysis of Algorithms | 3 | | | | | | Prereq: MATH 300 and some computer programming experience |
| MATH 393 Abstract Algebra I * | 3 | | | | | | Prereq: MATH 240 or consent of instructor |
| MATH 429 Operations Research | 3 | | | | | | Prereq: MATH 329 or 352 or equivalent |
| MATH 430 Research Design and Data Analysis | 3 | | | | | | Prereq: MATH/PSY 202 with a C or better or MATH 352; GE: A3, B3, UDIGE |
| MATH 437 Mathematics for Games, Simulations, and Robotics | 3 | | | | | | Prereq: MATH 137 or 300 or consent of instructor; GE: B3, UDIGE |
| MATH 438 Philosophy of Mathematics | 3 | | | | | | GE: A3, B3, UDIGE |
| MATH/COMP/PHYS 445 Image Analysis and Pattern Recognition | 3 | | | | | | Prereq: PHYS/COMP/MATH 345 or consent of instructor; GE: B1, B4, UDIGE |
| MATH 448 Scientific Computing | 3 | | | | | | Prereq: MATH 151 & MATH 350 or COMP 151; GE: B3, B4, UDIGE |
| MATH 450 Partial Differential Equations and Mathematical Physics | 3 | | | | | | Prereq: MATH 350 or consent of instructor |
| MATH/COMP 452 Computational Bioinformatics | 4 | | | | | | Prereq: Programming experience and statistics or consent of instructor |
| MATH 480 Differential and Riemannian Geometry | 3 | | | | | | Prereq: MATH 351 |
| MATH 482 Number Theory & Cryptography * | 3 | | | | | | Prereq: MATH 300 |
| MATH 484 Algebraic Geometry and Coding Theory | 3 | | | | | | Prereq: MATH 393 |
| MATH 490 Topics in Modern Mathematics | 3 | | | | | | Prereq: Upper division standing; Repeatable by topic |
| MATH 492 Internship * | 1-3 | | | | | | Prereq: Upper division standing & program approval of written proposal; Repeatable |
| MATH 494 Independent Research | 1-3 | | | | | | Prereq: Senior standing and program approval of written proposal; Repeatable |
| MATH 497 Directed Studies | 3 | | | | | | Prereq: Program approval of written proposal; Repeatable |
| MATH 499 Senior Colloquium | 1 | | | | | | Prereq: Senior standing; Repeatable |
| Emphasis Requirements (6-10 units) <i>Select <u>one</u> emphasis from the following 10 emphasis areas listed:</i> <i>Note: Courses used in the emphases cannot be counted to also fulfill an elective requirement</i> | | | | | | | |
| 1) Actuarial Sciences/Economics (9 units) <i>*See faculty advisor for course substitutions in this area.</i> | | | | | | | |
| ECON 300 Fundamentals of Economics* | 3 | | | | | | GE: D; Not open to students with credit in ECON 110 or 111 |
| ECON 486 Introduction to Econometrics | 3 | | | | | | Prereq: ECON 310 or 329, ECON 311 & MATH 340 |
| MATH 429 Operations Research | 3 | | | | | | Prereq: MATH 329 or 352 or equivalent |
| 2) Applied Mathematics (9 units) | | | | | | | |
| MATH 429 Operations Research | 3 | | | | | | Prereq: MATH 329 or 352 or equivalent |
| MATH 448 Scientific Computing | 3 | | | | | | Prereq: MATH 151; MATH 350 or COMP 151; GE: B3, B4, UDIGE |
| MATH 450 Partial Differential Equations and Mathematical Physics | 3 | | | | | | Prereq: MATH 350 or consent of instructor |

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| 3) Applied Physics (6 units) <i>Students selecting this emphasis should take PHYS 201.</i> | | | | | | | |
| MATH/COMP/PHYS 345 Digital Image Processing | 3 | | | | | | Prereq: Consent of instructor GE: B1, B4, UDIGE |
| MATH/COMP/PHYS 445 Image Analysis and Pattern Recognition | 3 | | | | | | Prereq: PHYS/COMP/MATH 345 or consent of instructor; GE: B1, B4, UDIGE |
| 4) Biomathematics (10 units) <i>*Students selecting this Emphasis should take BIOL 201 in the science sequence</i> | | | | | | | |
| MATH/PSY 202 Biostatistics | 3 | | | | | | Prereq: A passing score on the ELM exam or MATH 105 or equivalent; GE: B3 |
| MATH 430 Research Design and Data Analysis | 3 | | | | | | Prereq: MATH 202 with a C or better or MATH 352; GE: A3, B3, UDIGE |
| MATH/COMP 452 Computational Bioinformatics | 4 | | | | | | Prereq: Programming experience and statistics or consent of instructor |
| 5) Business Management (9 units) | | | | | | | |
| MATH 329 Statistics for Business & Economics | 3 | | | | | | GE: B3 |
| MATH 429 Operations Research | 3 | | | | | | Prereq: MATH 329 or 352 or equivalent |
| Economics or Upper Division Management course | 3 | | | | | | |
| 6) Computer Science (9 units) <i>*Students selecting this emphasis should take COMP 150 and COMP 151 for the computer science requirements.</i> | | | | | | | |
| COMP 350 Introduction to Software Engineering | 3 | | | | | | Prereq: COMP 232 & 262 |
| MATH 354 Analysis of Algorithms | 3 | | | | | | Prereq: MATH 300 and some computer programming experience |
| MATH 448 Scientific Computing | 3 | | | | | | Prereq: MATH 151 & MATH 350 or COMP 151; GE: B3, B4, & UDIGE |
| 7) Cognitive Science (9 units) <i>*See faculty advisor for course substitutions in this area.</i> | | | | | | | |
| MATH 430 Research Design & Data Analysis | 3 | | | | | | Prereq: MATH 202 with a C or better or MATH 352; GE: A3, B3 & UDIGE |
| PSY 210 Learning, Cognition & Development* | 3 | | | | | | GE: E |
| Upper division cognitive psychology course | 3 | | | | | | |
| 8) Digital Design (9 units) | | | | | | | |
| ART 108 Visual Technologies | 3 | | | | | | |
| MATH 393 Abstract Algebra I | 3 | | | | | | Prereq: MATH 240 or consent of instructor |
| ART 312 Digital Media Art: Time-Based Imaging and Compositing (or) ART 314 Digital Media Art: Digital Photography | 3 | | | | | | Prereq: ART 108 & 205 Prereq: ART 108 |
| 9) Education (9 units) <i>*This emphasis required to meet the Single Subject Matter Preparation requirement for future teachers.</i> | | | | | | | |
| EDUC 512 Equity, Diversity and Foundations of Schooling | 3 | | | | | | GE: C3b; EDUC 512 is a required class for the teaching credential program at CI |
| MATH 318 Mathematics for Secondary School Teachers | 3 | | | | | | Prereq: MATH 150 |
| MATH 393 Abstract Algebra I | 3 | | | | | | Prereq: MATH 240 or consent of instructor |
| 10) Physics (6 units) <i>*Students selecting this emphasis should take PHYS 201.</i> | | | | | | | |
| MATH 450 Partial Differential Equations and Mathematical Physics | 3 | | | | | | Prereq: MATH 350 or consent of instructor |
| PHYS (upper division) | 3 | | | | | | |

