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|--|---|
| Fiscal Unit/Academic Org | Mathematics - D0671 |
| Administering College/Academic Group | Arts and Sciences |
| Co-administering College/Academic Group | |
| Semester Conversion Designation | New Program/Plan |
| Proposed Program/Plan Name | Integrated Major in Mathematics and English |
| Type of Program/Plan | Undergraduate bachelors degree program or major |
| Program/Plan Code Abbreviation | IMME |
| Proposed Degree Title | Bachelor of Science in English and Mathematics |

Credit Hour Explanation

| Program credit hour requirements | | A) Number of credit hours in current program (Quarter credit hours) | B) Calculated result for 2/3rds of current (Semester credit hours) | C) Number of credit hours required for proposed program (Semester credit hours) | D) Change in credit hours |
|---|---------|---|--|---|---------------------------|
| Total minimum credit hours required for completion of program | | | | 121 | |
| Required credit hours offered by the unit | Minimum | | | 27 | |
| | Maximum | | | 41 | |
| Required credit hours offered outside of the unit | Minimum | | | 58 | |
| | Maximum | | | 72 | |
| Required prerequisite credit hours not included above | Minimum | | | 22 | |
| | Maximum | | | 22 | |

Program Learning Goals

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

Program Learning Goals

- Students develop mathematical problem-solving skills in chosen track within the major.
- Students learn to communicate mathematical understanding effectively.
- Students learn to analyze texts of various kinds—e.g., film, literary, oral, digital.
- Students gain an understanding of the role of diversity in literature and culture.
- Students demonstrate high levels of proficiency in oral and written communication by developing the ability to write persuasively and elegantly using the skills of argumentation, rhetoric, and style in more than one context.
- Students successfully integrate the skills learned in Math and English.

Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? Yes

Does the degree program or major have an assessment plan on file with the university Office of Academic Affairs? No

DIRECT MEASURES (means of assessment that measure performance directly, are authentic and minimize mitigating or intervening factors)

Classroom assignments

- Other classroom assessment methods (e.g., writing assignments, oral presentations, oral exams)

Evaluation of a body of work produced by the student

- Practicum, internship or research evaluation of student work
- Portfolio evaluation of student work
- Capstone course reports, papers, or presentations

INDIRECT MEASURES (means of assessment that are related to direct measures but are steps removed from those measures)

Surveys and Interviews

- Student survey
- Employer feedback or survey

Additional types of indirect evidence

- Job or post-baccalaureate education placement
- Grade review

USE OF DATA (how the program uses or will use the evaluation data to make evidence-based improvements to the program periodically)

- Analyze and discuss trends with the unit's faculty
- Analyze and report to college/school
- Periodically confirm that current curriculum and courses are facilitating student attainment of program goals

Program Specializations/Sub-Plans

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

| | |
|--|---|
| Program Specialization/Sub-Plan Name | Financial/Actuarial Track |
| Program Specialization/Sub-Plan Goals | <ul style="list-style-type: none"> • Students demonstrate strong computational skills highlighting statistics and probability, enhanced by strong writing, social awareness, and critical thinking skills. |
| Program Specialization/Sub-Plan Name | Math Education Track |
| Program Specialization/Sub-Plan Goals | <ul style="list-style-type: none"> • Students demonstrate the skills present in strong educators with exemplary content knowledge as well as the ability to analyze, decipher, and explain math in diverse ways. |
| Program Specialization/Sub-Plan Name | Applied Math Track |
| Program Specialization/Sub-Plan Goals | <ul style="list-style-type: none"> • Students exercise the skills that comprise a strong foundation in mathematics and its application to industrial and physical sciences, exhibiting excellent complementary skills in writing, research, and analysis. |
| Program Specialization/Sub-Plan Name | Theoretical Math Track |
| Program Specialization/Sub-Plan Goals | <ul style="list-style-type: none"> • Students are able to personalize the IDEM with a focus on "pure" mathematics, exploring the basic concepts and structure beneath math topics ranging from geometry to analysis, and articulating these topics to highlight particular fields of interest. |

Pre-Major

Does this Program have a Pre-Major? No

Attachments

- Integrated Major_20161128_revision_C_D.docx: Revised Program Proposal
(Program Proposal. Owner: Husen, William J)
- ASC IMME proposal.docx: Cover letter from English and Math
(Letter from Program-offering Unit. Owner: Husen, William J)

Comments

- Sent back for B Husen to make changes to cover letter. *(by Vankeerbergen, Bernadette Chantal on 12/01/2016 12:03 PM)*
- Revised Program Proposal attached - including curriculum maps and advising sheets. *(by Husen, William J on 11/29/2016 09:55 AM)*

Workflow Information

| Status | User(s) | Date/Time | Step |
|--------------------|---|---------------------|------------------------|
| Submitted | Husen, William J | 02/18/2016 03:54 PM | Submitted for Approval |
| Approved | Husen, William J | 02/18/2016 03:54 PM | Unit Approval |
| Approved | Haddad, Deborah Moore | 02/18/2016 05:10 PM | College Approval |
| Approved | Vankeerbergen, Bernadette Chantal | 02/28/2016 06:22 PM | ASCCAO Approval |
| Revision Requested | Vankeerbergen, Bernadette Chantal | 03/07/2016 09:28 AM | ASC Approval |
| Submitted | Husen, William J | 11/29/2016 09:55 AM | Submitted for Approval |
| Approved | Husen, William J | 11/29/2016 09:56 AM | Unit Approval |
| Approved | Haddad, Deborah Moore | 11/29/2016 11:41 AM | College Approval |
| Revision Requested | Vankeerbergen, Bernadette Chantal | 12/01/2016 12:03 PM | ASCCAO Approval |
| Submitted | Husen, William J | 12/01/2016 12:47 PM | Submitted for Approval |
| Approved | Husen, William J | 12/01/2016 12:47 PM | Unit Approval |
| Approved | Haddad, Deborah Moore | 12/01/2016 04:23 PM | College Approval |
| Pending Approval | Nolen, Dawn Vankeerbergen, Bernadette Chantal Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler Hogle, Danielle Nicole | 12/01/2016 04:23 PM | ASCCAO Approval |



December 1, 2016

ASC Curriculum Committee

Dear Committee:

Attached is a proposal for a new Integrated Major in Mathematics and English. As we noted on the original submission, both departments are excited by the possibilities presented by this new initiative. At the suggestion of the Department of Mathematics, the departments of English and Math worked together to create an integrated program that would prepare students for the workplace by giving the opportunity to develop skills in critical and humane thinking, data analysis, calculation, and communication. A few other institutions are starting to develop integrated majors and we see this as a potential model for other integrated majors that have potential to increase highly qualified students' interest in the Colleges of Arts and Sciences. We originally submitted the proposal in February 2016, but were asked to make some revisions, including the full development of the Capstone course. We believe we have answered all questions raised by the panel, but if you require anything further, please contact us.

Sincerely yours,

William Husen
Director of Undergraduate Studies
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Clare A. Simmons
Director of Undergraduate Studies
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Proposal: New Integrated Undergraduate Major in Mathematics and English

Catalogue style description:

The integrated major in Mathematics and English is a joint venture between the two departments. It enables students to acquire expertise in both fields and concludes with a capstone course combining the integrated skills developed in coursework. English coursework is very flexible; Math coursework will follow one of four tracks: Applied Math; Education; Finance and Actuarial Science; and Theory.

1. General Information

The **title** of the proposed new major is **Integrated Major in Mathematics and English**.

Degree Students completing the major will receive: B.S. (Bachelor of Science); they will pursue one of four concentrations: Actuarial/Finance, Applied, Math Education, and Theoretical

Proposed implementation date: Autumn 2018

Academic units responsible for administrating the major program: Mathematics and English

2. Rationale

Overview

The proposed Integrated Major in Mathematics and English is a collaborative effort between the two departments. A few major universities (e.g., Stanford) are now offering similar undergraduate programs, and we believe that The Ohio State University has the resources to become a leader in an emergent field. The primary objective is to offer undergraduates the opportunity to develop a set of skills that will equip them not only for employment and graduate school, but for long-term career success. An integrated major offers a different experience from a dual major or a major with minor since it encourages participants to think of the two fields of study not as distinct but as complementary. Since it requires only the credit hours of a single major, it should also be possible for students to complete the major program within four years, which can be a challenge with a double major. We believe that the Integrated Major has potential for recruiting high-achieving students to The Ohio State

University, where they will follow a curriculum in both departments and complete the program with an experiential capstone project integrating the skills acquired in each discipline.

Why Mathematics and English?

Mathematics and English are two core subjects in the Colleges of Arts and Sciences. Both attract large numbers of majors (currently around 1200 Math majors and 600 English majors), and so identifying enough students to create an integrated program should not be difficult. We hope, though, that if this collaborative program proves successful it could serve as a pilot for other integrated majors.

In combination, English and Mathematics teach students complementary skills. Liberal Arts majors learn critical thinking and analytical skills. In addition, the English program's strong emphasis on reading and writing teaches the ability to empathize, to process information, and to communicate, skills that employers constantly claim they need and that Math majors are sometimes seen as lacking. Mathematics teaches precision in modeling and in analyzing real-world problems, and involves skills in calculation and numerical analysis that are not typically part of a liberal arts program.

At the same time, the integrated major would be an advantage to many students intending to continue on to graduate school or a professional program, including those interested in law, medicine, business, and of course education. Where possible, students would be assisted in completing a capstone experience appropriate to their long-term plans.

This major could also be a means of recruiting high-achieving students to the College of Arts and Sciences. The program should be attractive both to ambitious students seeking a challenge and to parents of prospective students, who often express reservations about the long-term value of majors that do not seem to lead directly to employment.

Finally, this is the sort of program that is likely to attract support from employers and sponsors. It demonstrates that we are committed to teaching our students to think and communicate well, while ensuring that their education is helping to prepare them for the real world.

How assessment data has been used

We are proposing this major in response to requests from students and their families, who have expressed a desire for the skills necessary for success on the job market and in their subsequent careers. The concept was also developed with the support of prospective employers, who when surveyed generally responded enthusiastically to the idea of a major integrating verbal and numerical skills (see Appendices 3 and 4). It demonstrates that we are committed to teaching our students to think, while ensuring that their education is helping to prepare them for the

real world. Their enthusiasm reflects trends reported recently in major media and research sources that employers are seeking college graduates who have both technical expertise and “soft skills” such as writing, communication, critical thinking, creativity, and sociability. For instance, *Forbes* recently noted that “People with balanced strengths in social and math skills earn about 10% more than their counterparts who are strong in only one area.”¹ Similarly, a 2013 survey by Hart Research Associates, conducted on behalf of the Association of American Colleges and Universities, found that most employers agree that “having both field-specific knowledge and skills and a broad range of skills and knowledge is most important for recent college graduates to achieve long-term career success. Few think that having field-specific knowledge and skills alone is what is most needed for individuals’ career success.”²

The integrated major in English and Math is thus one attempt to address multiple calls, locally and nationally, for college graduates whose knowledge base and skills sets combine aptitudes and expertise associated with both the STEM fields and the Humanities.

Appropriateness to Ohio State

Ohio State has, we believe, the largest number of Mathematics and English majors of any institution in the state of Ohio; we have well-prepared undergraduates and highly qualified faculty with a broad range of expertise. We also have contacts with many prospective employers and/or sponsors for internships. Finally, the unification of the College of Arts and Sciences provides both opportunity and infrastructure (e.g., curricular, advising) for facilitating the development of an integrated major such as this within the College.

Benefits to Students

First, we would suggest that students who complete this program including the final capstone experience/internship would immediately be ahead of most of job market candidates in the range of skills that they could offer an employer. Students from both Math and English often find first jobs in banks, insurance, marketing, consulting, non-profit organizations, and other fields that require both some mathematical awareness and strong communication skills. Skills in analysis and communication become even more important for workers seeking promotion to management or supervisory positions.

¹ George Anders, “That ‘Useless’ Liberal Arts Degree Has Become Tech’s Hottest Ticket,” *Forbes* (29 July 2015): http://www.forbes.com/sites/georgeanders/2015/07/29/liberal-arts-degree-tech/3/?utm_campaign=Forbes&utm_source=TWITTER&utm_medium=social&utm_channel=Technology&linkId=15925038

² Hart Research Associates, “It Takes More Than a Major: Employer Priorities for College Learning and Student Success” (10 April 2013): http://www.aacu.org/sites/default/files/files/LEAP/2013_EmployerSurvey.pdf

Second, we see this program as a means of recruiting high-achieving students to the College of Arts and Sciences at The Ohio State University. Students with potential in both English and Math can readily be identified through the ACT and admissions process, and this program would be a valuable one for targeted recruiting. The program should be attractive both to ambitious students seeking a challenge and to parents of prospective students, who often express reservations about the long-term value of majors that do not seem to lead directly to employment.

Career Opportunities

As noted above, the foremost goal of the program is to enhance career opportunities for our students. The integrated major would also be of advantage to students intending to continue on to graduate school and professional programs, including those interested in law, medicine, business, and middle-school education. Where possible, students would be assisted in completing a capstone experience appropriate to their long-term plans.

Licensure

This program will not lead directly to licensure but would be compatible, assuming the student pursued the relevant concentration within the major, with successful completion of the Actuarial Science exams and with proficiency tests for middle school teachers.

3. Goals/Objectives and Evaluation of Program

Assessment Plan

Goals/Objectives and Evaluation of Program

Goals:

Students learn precision in modeling, calculation, and verbal and numerical analysis in order to examine and solve real-world problems; students develop critical thinking and analytical skills, with strong emphasis on reading and writing, in order to empathize, process information, and communicate effectively.

Expected Learning Outcomes

1. Students develop mathematical problem-solving skills in chosen track within the major.
2. Students learn to communicate mathematical understanding effectively.
3. Students learn to analyze texts of various kinds—e.g., film, literary, oral, digital.
4. Students gain an understanding of the role of diversity in literature and culture.

5. Students demonstrate high levels of proficiency in oral and written communication by developing the ability to write persuasively and elegantly using the skills of argumentation, rhetoric, and style in more than one context.
6. Students successfully integrate the skills learned in Math and English.

Direct Methods for measuring achievement of all six learning objectives:

- (a) Measure success rate in passing courses in both fields with a C- or above.
- (b) Measure overall mean GPA and compare with that of single majors.
- (c) Complete a panel assessment of portfolios and oral presentations from the capstone class using a grading rubric.

Indirect Methods for assessing the success of the program:

- (a) Survey students about their experiences in the program.
- (b) Keep records of job placements for graduates for three years after graduation for the first three graduating cohorts.

Criteria for evaluating successful student learning:

- (a) The same or better passing rate in courses and average GPA as for single majors
- (b) The same passing rate as for single majors in professional examinations; in actuarial science this is 75% passing one exam and 60% passing two or more exams
- (c) 80% of students testing as above proficient (i.e. a B or above) in the Capstone class
- (d) Placement rate of 80% in related employment within three years.

Assessment timeline:

In year three of the program (first cohort's junior year): Review student success in courses and compare with that of single majors in the two fields; measure program retention.

In year four of the program (first cohort's senior year): Start collection of data on job and graduate school placement; continue with the next two cohorts.

How information will be used:

Data on student success will be shared with the Chairs, Directors of Undergraduate Studies, and advisors in each Department, who will share in any decisions as to modifications to the major

Outline of Program

1. Ideally, freshmen would enter Ohio State having already declared the integrated major. Students entering the program later than their first year could be accommodated but most likely they would not be able to complete all the requirements within four years.
2. Where practicable, students would be encouraged to take a designated section of English 2367 that would give them opportunities to apply numerical awareness to the U.S. experience (demographics, statistics, and similar).
3. Appendix 1 shows sample advising plans for each of the four tracks for different Math emphases: Actuarial/Financial, Applied, Education, and Theoretical. The General Education requirements are based on the Bachelor of Science pattern, which would be the degree awarded. It should be noted that the “Education” track does not contain all the State prerequisites for entering an M.Ed. program. An interested student could certainly complete these, but the result would most likely be a program of more than 122 hours. There is more variability in the English courses given that each student will work with an English adviser to select courses most appropriate to his/her goals. In general, the English courses will improve students’ abilities in composition (including digital composition), critical thinking, interpretation, and research, and develop their empathy, social awareness, and historical understanding.

During the senior year, and normally during the final semester, students would complete a capstone requirement where they will gain real-life experience in using skills drawn from both Math and English, culminating in a final project based on one of the topics covered in the course. The course will be team-taught by faculty from Math and English, assisted by the Buckeye Leadership Fellows Program sponsored by the Office of Student Life. A syllabus for this new course is attached as Appendix

Relationship to Other Programs/Benchmarking

- All four concentrations are currently offered in the Department of Math. Their disposition within the integrated major will necessarily be less powerful because some of the depth of coursework will be cut to accommodate the English component, but the courses within the four concentrations have been carefully assembled to ensure that students can meet standards expected for the careers for which those paths prepare them. As mentioned above, the Education track will not lead directly to high school credentialing, but is instead suited for Middle School teaching.

The Department of English administers six minors—English, Creative Writing, Professional Writing, Critical and Cultural Theory, Popular Culture, and Medical Humanities—any one of which might be a useful addition for a regular Math major. But the point of the integrated major is to provide substantial coursework in *both* English and Math, with strategic opportunities (a specially designed English 2367 where practicable; and the capstone course, which is a graduation requirement) for integrating knowledge and skills developed in each area. The integrated major will thus provide a

carefully structured educational experience that will be different from double majoring or majoring and minoring in Math and English.

Although there are integrated majors that bring together the natural/mathematical sciences and the Humanities—for example, Computer Science and English, and Computer Science and Music at Stanford—our proposal appears to be the first major to integrate the fields of Math and English.

- There are no known overlaps with any other programs or departments within the university.
- Eddie Pauline, Director of the Buckeye Leadership Fellows Program, has indicated his willingness to use that program as part of the capstone course.
- There are no articulation arrangements that need to be made for the major.
- No consultants or advisory committees have been involved in the development of the major.
- This is the first time this major has been proposed.
- Students will be recruited through the regular admissions process, with informational materials sent to admitted students interested in both Math and English. In addition, some current English and Math majors may decide to pursue the new major. It may also attract students who would have pursued another major.

4. Student Enrollment

Expected first-year enrollment: 20

Subsequent enrollment: 70-100 total (20-25 students/year)

Note: OSU records indicate that in the past 11 years, approximately four students per year have combined some kind of English and Math/Actuarial Science degree (e.g., an English Major with a Math minor, a double major in English and Math, a Math major with a Creative Writing minor). These numbers will not translate exactly into the number of students who might pursue the integrated major given that it is a different type of collaboration of the two fields, but they at least indicate that there will be interest among students in a Math-English degree combination.

5. Curricular Requirements

- Sample **advising plans**, which include required GE and elective course selections for all four concentrations, are provided in Appendix 1.
- All of the **courses for the proposed major** will be drawn from existing courses in English and Math. Students should fulfill their literature GE through an English course, preferably one of the historical surveys. A number of these will be variable depending on the student's needs as determined in consultation with an adviser. The following

courses will be required, among them the only course that will need to be developed: a capstone course described below.

- English 1110: First-Year English Composition (3)
Practice in the fundamentals of expository writing, as illustrated in the student's own writing & in the essays of professional writers.
- English 2367: Second-level writing course [various versions] (3)
Extends & refines expository writing & analytical reading skills.
- English 2269: Digital Media Composing (3)
A composition course in which students analyze and compose digital media texts while studying complex forms and practices of textual production.
- English 3398: Methods for the Study of Literature; OR 3379: Methods for the Study of Writing, Rhetoric, Literacy; OR 2270: Introduction to Folklore (methods courses) (3)
[NOTE: although students will not complete one of the English concentrations, their choice of Methods course should match with their interests; for example, students planning to concentrate mainly on Literature, Film, or Creative Writing courses at the 4000 level should take 3398; those planning to take more courses in rhetoric and writing should take 3379].]
- Math 1295: Introductory Seminar (1)
Seminar on mathematical topics for beginning math majors.
- Math 1151: Calculus I (5)
Differential and integral calculus of one real variable.
- Math 1152: Calculus II (5)
Integral calculus, sequences and series, parametric curves, polar coordinates, (optional: vectors)
- Math 2153: Calculus III (4)
Multivariable differential and integral calculus.
- Math 2255: Differential Equations and their Applications (3)
Ordinary differential equations, their series solutions, numerical methods, Laplace transforms, physical applications.
- Math 2568: Linear Algebra (3)
Matrix algebra, vector spaces and linear maps, bases and dimension, eigenvalues and eigenvectors, applications.
- Math 3345: Foundations of Higher Mathematics (3)
Introduction to logic, proof techniques, set theory, number theory, real numbers.
- Math 3607: Beginning Scientific Computing (3)
Introduction to mathematical theory of algorithms used to solve problems that typically arise in sciences, engineering, and finance.
- Math 4504: History of Mathematics (3)

Development of mathematics from primitive origins to present forms. Topics include development of arithmetic, algebra, geometry, trigonometry, and calculus.

- Math 4530: Probability (3)
Combinatorial probability, random variables, independence, expectation, variance.
- Math 4547: Introductory Analysis I (3)
Involves advanced calculus: sequences, limits, continuity, differentiation, Riemann integral, sequences and series of functions, Taylor series, improper integrals.
- Math 4580: Abstract Algebra I (3)
Topics in number theory, group theory, vector spaces and linear transformation, field theory, and field extensions.
- Computer Science and Engineering 2111: Modeling and Problem Solving with Spreadsheets and Databases (3) Spreadsheet and database modeling/programming concepts and techniques to solve business related problems; efficient/effective data handling, computational analysis and decision support. Additional topics: computer concepts, networking, project integration.
- Economics 2001: Principles of Microeconomics (3)
Introduction to economic theory: supply and demand for goods, services, and factor inputs; market structure; international trade, the distribution of income.
- Economics 2002: Principles of Macroeconomics (3)
Introduction to the theory of national income determination; economic fluctuations; money; government policy; international economics.
- Statistics 4201: Introduction to Mathematical Statistics I (4)
Basic concepts in mathematical statistics, including probability, discrete and continuous distributions and densities, mathematical expectation, functions of random variables, transformation techniques, sampling distributions, order statistics.
- Statistics 4202: Introduction to Mathematical Statistics II (4)
Decision theory, point and interval estimation, Neyman-Pearson lemma, likelihood ratio tests, tests for means, variances, and proportions, nonparametric tests, regression, and ANOVA.
- English 4000-level diversity course: 4577.01 Folklore I: Groups & Communities; 4592 Topics in Women in Literature and Culture; 4580 Topics in LGBTQ Literatures/Cultures; 4587 Studies in Asian American Literature/Culture; 4597.01 Disability Experience in the Contemporary World; 4581 Topics in U.S. Ethnic Literatures; 4588 Studies in Latino/a Literature/Culture; 4601 Language & the Black Experience; 4582 Topics in African-American Lit; 4589 Studying the Margins: Power, Language, & Culture

- Four additional English courses at the 3000-level or above
- **Capstone Course for IMME: English/Math 4420 (new course) (3)**

Students pursuing the Integrated Degree in Math and English will learn concepts, develop understanding of theories, and acquire techniques and skills in a variety of courses in math and English. If their schedules allow, they will also take a specially designed English 2367 that will allow them to explore content, concepts, and skills from both fields. In their senior year, IMME majors will take a capstone course that will provide an opportunity to integrate and apply the full range of knowledge and skills they have acquired through their previous coursework to real-world practice.

This capstone course will combine both professional development and leadership seminars and a capstone project on a topic chosen from real-world challenges submitted to the IDEM program through our community and industry partners. The course will thus provide students with both a critical learning experience and an opportunity to synthesize and apply what they learned in IMME in a real situation. Students who complete this capstone course will have a broader understanding of their own personal strengths and which jobs might require their particular set of skills, thus resulting in a student who is more prepared for entering the workforce.

The course will be team-taught by two faculty members, one from the English Department and one from the Math Department. It will rely on the infrastructure, experience, and business contacts from the Buckeye Leadership Fellows Program (Office of Student Life) and the actuarial science course in the Math Department, Math 3588. The course proposal is attached as Appendix 5.

- Curriculum Map See also Appendix 6)

| Learning Objective | How fulfilled |
|--|---|
| (1) Students develop mathematical problem-solving skills in chosen track within major | 3000-4000-level Math courses within track |
| (2) Students learn to communicate mathematical understanding effectively | other Math courses and Math/English 4420 |
| (3) Students learn to analyze texts of different kinds—e.g., film, literary, oral, digital. | English Methods courses (3398, 3379, 2270) and English 2269 |
| (4) Students gain an understanding of the role of diversity in literature and culture | English 4000-level diversity courses |

| | |
|---|--|
| (5) Students demonstrate high levels of proficiency in oral and written communication by developing the ability to write persuasively and elegantly using the skills of argumentation, rhetoric, and style in more than one context. | English 2367; 3000-4000-level English courses within track |
| (6) Students successfully integrate the skills learned in Math and English | Capstone course English/Math 4420 |

- There are no prerequisites for declaring an English or Math major. Standard prerequisites for the majors are English 1110/2367; Math 1151/1152; and Econ 2001/2002.
- The minimum number of credits required for the completion of the major is 41.
- Students who enter as IDEM majors should be able to graduate in the standard 121 credit hours.
- See Appendix 1 for 4-year student advising plans in all four tracks.
- All courses toward the major will be in Math and English.
- A typical number of elective hours would be 12-15 upper-level credits.
- In addition to following course requirements, successful completion of the Capstone course with portfolio and presentation is a required part of the major.
- The major does not include accreditation, but students would be able to take professional examinations such as the actuarial science exam.
- **Impact of New Major on Facilities, Faculty, and Support Services**
Because students would be taking the same courses as other Math and English majors, the only new course required would be the capstone course, and even this would draw on systems already in place such as the Actuarial Science capstone, Professional Writing internships, and the Buckeye Leadership Program. The only additional expense would be for faculty labor to teach the capstone course (3 hours). At least for the first iterations, the course would be team-taught by one faculty member from each Department.

In addition to a version of English 2367 (the second writing course) directed specifically to this population, it might be possible to tailor the syllabus for other multi-section English classes should the number of students justify it, but while this would entail some coordination it would not require the creation of new courses.

Some additional work will be involved in the form of the Integrated Major Advising Committee, which will consist of the Directors of Undergraduate Studies from Math and English; an additional faculty member from each department; and an advisor from each department.

Finally, the program will be dependent on active involvement in recruiting.

Appendix 1

Concentrations: advising plans

NOTE: Where appropriate to the concentration, 3000-level English courses can substitute for 4000-level courses

Integrated Major in Mathematics and English

In combination, English and Mathematics teach students an impressive range of skills. English courses teach critical thinking and analytical skills as well as the kind of communication and writing skills that are needed in a variety of careers and professional/graduate schools. Mathematics teaches precision in modeling and in analyzing real-world problems, and involves skills in calculation and numerical analysis. The Integrated Major in Mathematics and English is thus designed not only to develop these crucial skills sets but also to provide opportunities to integrate them in real-world work contexts.

Students interested in the integrated major generally have ACT Math, English, and Reading scores of at 25 and/or an SAT Math score of at least 570; and a verbal SAT score of at least 610. Interested students should contact a Mathematics advisor as well as an English advisor to map out an appropriate program of courses. Those who complete the major will graduate with a Bachelor of Science.

Career and Post-Baccalaureate Opportunities

Students who complete this major will be ahead of most college graduates in the range of skills that they can offer an employer. Depending on the concentration they pursue, students often find first jobs in banks, insurance, marketing, non-profit organizations, consulting, education, and other fields that require both some mathematical awareness and strong communication skills. Skills in analysis and communication become even more important for workers seeking promotion to management or supervisory positions. Some students pursuing this major may have the long-term goal of starting their own business. The integrated Major is also a path to advanced study in professional programs (such as Business-MBA, Medical, and Law School) and graduate school.

Requirements

Students will pursue one of four concentrations—Theoretical Math, Math for Educators, Actuarial/Financial Math, or Applied Math—each of which includes a full complement of Math and English coursework. Each concentration concludes with a capstone course in which students receive extensive leadership training while they also work with a workplace partner to develop a project in which they use both the Math and English skills and expertise they have acquired through their coursework.

Each concentration is described below and is supported by a four-year advising plan. Each concentration includes room for a series of electives, which could be taken in the form of a minor chosen by the student.

Applied Math Advising Plan: Just as the name indicates, this track utilizes mathematics as it applies in real-life situations. By building a strong foundation in mathematics and its application to industrial and physical sciences and supporting that foundation with excellent skills in writing, research, and analysis, students completing this track will be well prepared for a career or graduate-level study in engineering, computer science, physics, architecture and more.

| Integrated Major: Applied Math Concentration | | | | | | |
|---|---|--------------------------|----------------------------------|---|----------------------------|------------------------------------|
| | Fall Courses | Fall Credit Hours | Fall Upper Division Hours | Spring Courses | Spring Credit Hours | Spring Upper Division Hours |
| Year 1 | Writing GE: English 1110 | 3 | 0 | Writing GE: English 2367 - Pre-req major | 3 | 0 |
| | Math/Logical Analy GE: Math 1151 - Pre-req major | 5 | 0 | Lit GE: English course at 2000-level+ | 3 | 0 |
| | Foreign Language GE | 4 | 0 | Open Options GE: Math 1152 - Pre-req major | 5 | 0 |
| | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 0 | Math 1295 | 1 | 0 |
| | Art Sci Survey | 1 | 0 | Foreign Language GE | 4 | 0 |
| Year 2 | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 3 | English Methods Course: 3398, 3379, or 2270 | 3 | 3 |
| | Foreign Language GE | 4 | 0 | Math 2255 Differential Equations | 3 | 3 |
| | Open Options GE: Math 2153 Calculus III | 4 | 4 | Math 2568 Linear Algebra | 3 | 3 |
| | CSE 2111 Modeling and Problem Solving with Spreadsheets and Databases | 3 | 3 | Natural Science GE Lab Course | 4 | 0 |
| | | 0 | 0 | Elective Course | 3 | 0 |
| Year 3 | English 4000-level diversity in literature and culture course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 4530 or Stats 4201 Probability | 4 | 4 | Stat 4202 Statistics | 4 | 4 |
| | Cultures and Ideas or History GE (doubles as 1st Global Studies GE) | 3 | 0 | Natural Science GE Lab Course | 4 | 0 |
| | English 3000-level+ course | 3 | 3 | History GE (doubles as 2nd Global studies GE) | 3 | 0 |
| | Visual and Performing Arts GE: English 2269 | 3 | 0 | | 0 | 0 |
| Year 4 | English 4000-level+ course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 3607 Beginning Scientific Computing | 3 | 3 | Elective course--upper division | 3 | 3 |
| | Natural Science GE | 3 | 0 | Elective course | 3 | 0 |
| | Elective course | 3 | 0 | Integrated Major Capstone course | 3 | 3 |
| | Elective course--upper division | 3 | 3 | Elective course | 2 | 0 |
| | Totals for Fall Terms | 61 | 29 | Totals for Spring Terms | 60 | 25 |
| | | | | | | |
| | Total Credit Hours | 121 | | | | |
| | Total Upper Division Hours | 54 | | | | |

Capstone Course (English/Math 4420)

Students pursuing the Integrated Major will learn concepts, develop understanding of theories, and acquire techniques and skills in a variety of courses in Math and English. If their schedules allow, they will also take a specially designed English 2367 that will allow them to explore content, concepts, and skills from both fields. In their senior year, students will take a capstone course that will provide an opportunity to integrate and apply the full range of knowledge and skills they have acquired in the program

Education Advising Plan: By learning foundational logic within a wide scope of math topics from calculus to abstract algebra and combining this with the communication and analytical skills offered by English courses, this track helps to generate strong educators with exemplary content knowledge as well as the ability to analyze, decipher, and explain math in diverse ways. (Note: the “Education” track does not contain all the State prerequisites for entering an M.Ed. program. An interested student could certainly complete these but the result would most likely be a program of more than 122 hours. Middle school teaching is the more likely career path with this track.)

| Integrated Major: MathEd Concentration | | | | | | |
|---|---|--------------------------|----------------------------------|---|----------------------------|------------------------------------|
| | Fall Courses | Fall Credit Hours | Fall Upper Division Hours | Spring Courses | Spring Credit Hours | Spring Upper Division Hours |
| Year 1 | Writing GE: English 1110 | 3 | 0 | Writing GE: English 2367 - Pre-req major | 3 | 0 |
| | Math/Logical Analy GE: Math 1151 - Pre-req major | 5 | 0 | Lit GE: English course at 2000-level+ | 3 | 0 |
| | Foreign Language GE | 4 | 0 | Open Options GE: Math 1152 - Pre-req major | 5 | 0 |
| | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 0 | Math 1295 | 1 | 0 |
| | Art Sci Survey | 1 | 0 | Foreign Language GE | 4 | 0 |
| Year 2 | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 3 | English Methods Course: 3398, 3379, or 2270 | 3 | 3 |
| | Foreign Language GE | 4 | 0 | Math 2255 Differential Equations | 3 | 3 |
| | Open Options GE: Math 2153 Calculus III | 4 | 4 | Math 2568 Linear Algebra | 3 | 3 |
| | CSE 2111 Modeling and Problem Solving with Spreadsheets and Databases | 3 | 3 | Natural Science GE Lab Course | 4 | 0 |
| | | 0 | 0 | Elective course | 3 | 0 |
| Year 3 | English 4000-level diversity in literature and culture course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 4530 or Stats 4201 Probability | 4 | 4 | Math 3345 Foundations of Higher Mathematics | 3 | 3 |
| | Cultures and Ideas or History GE (doubles as 1st Global Studies GE) | 3 | 0 | Natural Science GE Lab Course | 4 | 0 |
| | English 3000-level+ course | 3 | 3 | Elective course | 3 | 0 |
| | Visual and Performing Arts GE: English 2269 | 3 | 0 | | 0 | 0 |
| Year 4 | English 4000-level+ course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 4504 History of Mathematics | 3 | 3 | Elective course--upper division | 3 | 3 |
| | Natural Science GE | 3 | 0 | Elective course | 3 | 0 |
| | Elective course | 3 | 0 | Integrated Major Capstone course | 3 | 3 |
| | Elective course--upper division | 3 | 3 | History GE (doubles as 2nd Global studies GE) | 3 | 0 |
| | Totals for Fall Terms | 61 | 29 | Totals for Spring Terms | 60 | 24 |
| | | | | | | |
| | Total Credit Hours | 121 | | | | |
| | Total Upper Division Hours | 53 | | | | |

Capstone Course (English/Math 4420)

Students pursuing the Integrated Major will learn concepts, develop understanding of theories, and acquire techniques and skills in a variety of courses in Math and English. If their schedules allow, they will also take a specially designed English 2367 that will allow them to explore content, concepts, and skills from both fields. In their senior year, students will take a capstone course that will provide an opportunity to integrate and apply the full range of knowledge and skills they have acquired in the program.

Financial and Actuarial Science Advising Plan: The financial and insurance industries are among the most prominent and complex industries in the world today. With a strong computational background highlighting statistics and probability enhanced by strong writing, social awareness, and critical thinking skills, students in this track will be competitive candidates in any corporate or commercial based career within the insurance, finance, investment, real estate, actuarial consulting, or banking industry.

| Integrated Major: Financial/Actuarial Concentration | | | | | | |
|--|---|--------------------------|----------------------------------|---|----------------------------|------------------------------------|
| | Fall Courses | Fall Credit Hours | Fall Upper Division Hours | Spring Courses | Spring Credit Hours | Spring Upper Division Hours |
| Year 1 | Writing GE: English 1110 | 3 | 0 | Writing GE: English 2367 - Pre-req major | 3 | 0 |
| | Math/Logical Analy GE: Math 1151 - Pre-req major | 5 | 0 | Lit GE: English course at 2000-level+ | 3 | 0 |
| | Foreign Language GE | 4 | 0 | Open Options GE: Math 1152 - Pre-req major | 5 | 0 |
| | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 0 | Math 1295 | 1 | 0 |
| | Art Sci Survey | 1 | 0 | Foreign Language GE | 4 | 0 |
| Year 2 | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 3 | English Methods Course: 3398, 3379, or 2270 | 3 | 3 |
| | Foreign Language GE | 4 | 0 | Math 3618 Interest Theory | 3 | 3 |
| | Open Options GE: Math 2153 Calculus III | 4 | 4 | Math 2568 Linear Algebra | 3 | 3 |
| | CSE 2111 Modeling and Problem Solving with Spreadsheets and Databases | 3 | 3 | Natural Science GE Lab Course | 4 | 0 |
| | | 0 | 0 | Elective course | 3 | 0 |
| Year 3 | English 4000-level diversity in literature and culture course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 4530 or Stats 4201 Probability | 4 | 4 | Stat 4202 Statistics | 4 | 4 |
| | Cultures and Ideas or History GE (doubles as 1st Global Studies GE) | 3 | 0 | Natural Science GE Lab Course | 4 | 0 |
| | English 3000-level+ course | 3 | 3 | History GE (doubles as 2nd Global studies GE) | 3 | 0 |
| | Visual and Performing Arts GE: English 2269 | 3 | 0 | | 0 | 0 |
| Year 4 | English 4000-level+ course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 5632 Math Methods in Financial Economics | 3 | 3 | Elective course--upper division | 3 | 3 |
| | Natural Science GE | 3 | 0 | Elective course | 3 | 0 |
| | Elective course | 3 | 0 | Integrated Major Capstone course | 3 | 3 |
| | Elective course--upper division | 3 | 3 | Elective course | 2 | 0 |
| | Totals for Fall Terms | 61 | 29 | Totals for Spring Terms | 60 | 25 |
| | | | | | | |
| | | | | | | |
| | Total Credit Hours | 121 | | | | |
| | Total Upper Division Hours | 54 | | | | |

Capstone Course (English/Math 4420)

Students pursuing the Integrated Major will learn concepts, develop understanding of theories, and acquire techniques and skills in a variety of courses in Math and English. If their schedules allow, they will also take a specially designed English 2367 that will allow them to explore content, concepts, and skills from both fields. In their senior year, students will take a capstone course that will provide an opportunity to integrate and apply the full range of knowledge and skills they have acquired in the program.

Theoretical Math Advising Plan: Also known as “pure” mathematics, theoretical mathematics explores the basic concepts and structure beneath many math topics ranging from geometry to analysis. With elective options constructed as part of this track along with communication, writing, and critical thinking skills provided through English coursework, students are able to personalize the major to meet the needs of their future career/academic goals or to highlight particular fields of interest.

| Integrated Major: Theoretical Math Concentration | | | | | | |
|---|---|--------------------------|----------------------------------|--|----------------------------|------------------------------------|
| | Fall Courses | Fall Credit Hours | Fall Upper Division Hours | Spring Courses | Spring Credit Hours | Spring Upper Division Hours |
| Year 1 | Writing GE: English 1110 | 3 | 0 | Writing GE: English 2367 - Pre-req major | 3 | 0 |
| | Math/Logical Analy GE: Math 1151 - Pre-req major | 5 | 0 | Lit GE: English course at 2000-level+ | 3 | 0 |
| | Foreign Language GE | 4 | 0 | Open Options GE: Math 1152 - Pre-req major | 5 | 0 |
| | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 0 | Math 1295 | 1 | 0 |
| | Art Sci Survey | 1 | 0 | Foreign Language GE | 4 | 0 |
| Year 2 | English Methods Course: 3398, 3379, or 2270 | 3 | 3 | English 3000-level+ course | 3 | 3 |
| | Social Science GE: Econ 2001 or 2002 - Pre-req major | 3 | 0 | Math 2255 Differential Equations | 3 | 3 |
| | Open Options GE: Math 2153 Calculus III | 4 | 4 | Math 2568 Linear Algebra | 3 | 3 |
| | Foreign Language GE | 4 | 0 | Natural Science GE Lab Course | 4 | 0 |
| | --- | 0 | 0 | Elective Course | 3 | 0 |
| Year 3 | English 4000-level diversity in literature and culture course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 4530 or Stats 4201 Probability | 4 | 4 | Math 3345 Foundations of Higher Mathematics | 3 | 3 |
| | Cultures and Ideas or History GE (doubles as 1st Global Studi | 3 | 0 | Natural Science GE Lab Course | 4 | 0 |
| | Elective course | 3 | 0 | History GE (doubles as 2nd Global studies GE | 3 | 0 |
| | Visual and Performing Arts GE: English 2269 | 3 | 0 | Elective course | 3 | 3 |
| Year 4 | English 4000-level+ course | 3 | 3 | English 4000-level+ course | 3 | 3 |
| | Math 4580 Abstract Algebra I | 3 | 3 | Math 4547 Introductory Analysis I | 3 | 3 |
| | Natural Science GE | 3 | 0 | Elective course--upper division | 3 | 0 |
| | Elective course--upper division | 3 | 3 | Integrated Major Capstone Course | 3 | 3 |
| | Elective course | 3 | 0 | | 0 | 0 |
| | Totals for Fall Terms | 61 | 23 | Totals for Spring Terms | 60 | 27 |
| | | | | | | |
| | Total Credit Hours | 121 | | | | |
| | Total Upper Divison Hours | 50 | | | | |

Capstone Course (English/Math 4420)

Students pursuing the Integrated Major will learn concepts, develop understanding of theories, and acquire techniques and skills in a variety of courses in Math and English. If their schedules allow, they will also take a specially designed English 2367 that will allow them to explore content, concepts, and skills from both fields. In their senior year, students will take a capstone course that will provide an opportunity to integrate and apply the full range of knowledge and skills they have acquired in the program.

Appendix 2

Advising Sheets

Contacts

Department of English: english.osu.edu

English Advising: Pablo Tanguay, Undergraduate Program Manager: tanguay.1@osu.edu; 614-292-6065

Department of Mathematics: math.osu.edu

Mathematics Advising: mathadvisors@math.osu.edu

Integrated Math and English Major: Applied Math Concentration

Part A: Required Prerequisites (22 hrs)

| | |
|--|---|
| | Econ 2001 Principles of Microeconomics (3 hrs) |
| | Econ 2002 Principles of Macroeconomics (3 hrs) |
| | English 1110 First Year English Composition (3 hrs) |
| | English 2367 Second Year Writing (3 hrs) |
| | Math 1151 Calculus I (5 hrs) |
| | Math 1152 Calculus II (5 hrs) |

Part B: Major Program (48-49 hrs)

Core courses for track (30-31 hrs)

| | |
|--|---|
| | CSE 2111 Modeling and Problem Solving with Spreadsheets and Databases (3 hrs) |
| | English 2269 Digital Media Composing (3 hrs) |
| | Math 1295 Introductory Seminar (1 hr) |
| | Math 2153 Calculus III (4 hrs) |
| | Math 2255 Differential Equations and Their Applications (3 hrs) |
| | Math 2568 Linear Algebra (3 hrs) |
| | Math 3607 Beginning Scientific Computing (3 hrs) |
| | Math 4530 or Stat 4201 Probability or Introduction to Mathematical Statistics I (3-4 hrs) |
| | Stat 4202 Introduction to Mathematical Statistics II (4 hrs) |
| | English/Math 4420 Integrated Major Capstone Course (3 hrs) |

Choose **One** Diversity in English studies course from the list below (3 hrs)

| | | |
|---|---|---|
| 4577.01 Folklore I: Groups & Communities | 4586 Studies in American Indian Literature/Culture | 4592 Topics in Women in Literature and Culture |
| 4580 Topics in LGBTQ Literatures/Cultures | 4587 Studies in Asian American Literature/Culture | 4597.01 Disability Experience in the Contemporary World |
| 4581 Topics in U.S. Ethnic Literatures | 4588 Studies in Latino/a Literature/Culture | 4601 Language & the Black Experience |
| 4582 Topics in African-American Lit | 4589 Studying the Margins: Power, Language, & Culture | |

Choose **One** English Methods course from the list below (3 hrs)

| | | |
|------------------------|---|--|
| 2270 Intro to Folklore | 3379 Methods for the Study of Rhetoric, Writing, and Literacy | 3398 Methods for the Study of Literature |
|------------------------|---|--|

| | | |
|------------------------|---|--|
| 2270 Intro to Folklore | 3379 Methods for the Study of Rhetoric, Writing, and Literacy | 3398 Methods for the Study of Literature |
|------------------------|---|--|

Choose **One** English course at the *2000-level or higher* from the list below (3 hrs)

Choose **Three** English Courses at the *3000-level or higher* from the list below (9 hrs)

| | | |
|---|--|--|
| 2201 British Lit: Medieval through 1800 | 3468 Intermed. Creative Writing: Topics in Creative Nonfiction | 4573.02 Rhetoric & Social Action |
| 2201H British Lit: Medieval through 1800 | 3597.03 Environmental Citizenship | 4574 History & Theories of Writing |
| 2202 British Lit: 1800 to Present | 3662 Intro to Literary Publishing | 4575 Topics in Literary Forms & Themes |
| 2202H British Lit: 1800 to Present | 4150 Cultures of Professional Writing (CSTW 4150) | 4576.01 History of Critical Theory I: Plato to Aestheticism |
| 2220 Intro to Shakespeare | 4400 Literary Locations | 4576.02 History of Critical Theory II: 1900 to Present |
| 2220H Intro to Shakespeare | 4513 Intro to Medieval Lit | 4576.03 History of Critical Theory III: Issues and Movements |
| 2260 Intro to Poetry | 4514 Middle English Lit | 4577.01 Folklore I: Groups & Communities |
| 2260H Intro to Poetry | 4515 Chaucer | 4577.02 Folklore II: Genres, Form, Meaning, & Use |
| 2261 Intro to Fiction | 4520.01 Shakespeare | 4577.03 Folklore III: Issues & Methods |
| 2261H Intro to Fiction | 4520.02 Topics in Shakespeare | 4578 Topics in Film |
| 2262 Intro to Drama | 4521 Renaissance Drama | 4578H Topics in Film |
| 2262H Intro to Drama | 4522 Renaissance Poetry | 4579 Topics in Nonfiction |
| 2263 Intro to Film | 4523 Topics in Renaissance Lit/Culture | 4580 Topics in LGBTQ Literatures/Cultures |
| 2264 Intro to Popular Culture Studies | 4531 Restoration & 18th-Century Lit | 4581 Topics in U.S. Ethnic Literatures |
| 2265 Writing of Fiction I | 4533 Early British Novel: Origins to 1830 | 4582 Topics in African-American Lit |
| 2266 Writing of Poetry I | 4535 Topics in Restoration & 18th-Century British Lit/Culture | 4583 Topics in World Lit in English |
| 2267 Intro to Creative Writing | 4540 19th-Century British Poetry | 4584 Topics in Literacy Studies |
| 2268 Writing of Creative Nonfiction I | 4542 19th-Century British Novel | 4585 History of Literacy |
| 2269 Digital Media Composing | 4543 20th-Century British Fiction | 4586 Studies in American Indian Lit/Culture |
| 2270 Intro to Folklore | 4547 20th-Century Poetry | 4587 Studies in Asian American Lit/Culture |
| 2270H Intro to Folklore | 4549 Modern Drama | 4588 Studies in Latino/a Lit/Culture |
| 2275 Thematic Approaches to Lit | 4550 Topics in Colonial & Early National Lit of the U.S. | 4589 Studying the Margins: Language, Power, & Culture |
| 2276 Arts of Persuasion | 4551 Topics in 19th-Century U.S. Lit | 4590.01H The Middle Ages |
| 2277 Intro to Disability Studies | 4552 Topics in American Poetry Through 1915 | 4590.02H The Renaissance |
| 3379 Intro to Writing, Rhetoric, Literacy | 4553 20th-Century U.S. Fiction | 4590.03H The Long 18th Century |
| 2280 English Bible | 4554 English Studies & Global Human Rights | 4590.04H Romanticism |
| 2280H English Bible | 4555 Rhetoric and Legal Argumentation | 4590.05H The Later 19th Century |
| 2281 Intro to African-American Lit | 4559 Intro to Narrative & Narrative Theory | 4590.06H The Modern Period |
| 2282 Intro to Queer Studies | 4560 Topics in Poetry | 4590.07H Lit in English after 1945 |
| 2290 Colonial and U.S. Lit to 1865 | 4561 Studies in Fictional & Nonfictional Narrative | 4590.08H U.S. & Colonial Lit |
| 2291 U.S. Lit: 1865 to Present | 4562 Studies in Lit & the Other Arts | 4590.09H Topics in Lit & Literary Interpretation |
| 2296H Lit and Intellectual Movements | 4563 Contemporary Lit | 4591.01H Topics in the Study of Creative Writing |
| 3398 Intro to the Study of Lit | 4564.01 Major Author, Medieval & Renaissance British Lit | 4591.02H Topics in the Study of Rhetoric |
| 3271 Structure of the English Lang | 4564.02 Major Author, 18th- & 19th-Century British Lit | 4592 Topics in Women in Lit/Culture |
| 3304 Business & Professional Writing | 4564.03 Major Author, American Lit to 1900 | 4595 Literature & Law |
| 3305 Technical Writing | 4564.04 Major Author, 20th-Century Lit | 4597.01 Disability Experience in the Contemporary World |
| 3331 Thinking Theoretically | 4565 Writing of Fiction II | 4597.02 American Regional Cultures in Transition |

| | | |
|--|---|---|
| 3361 Narrative & Medicine | 4566 Writing of Poetry II | 5191 English Internship |
| 3364 Topics in Popular Culture | 4567S Rhetoric & Community Service: A Writing Seminar | 5664 Studies in Graphic Narrative |
| 3372 Science Fiction and/or Fantasy | 4568 Writing of Creative Nonfiction II | 5710.01 Intro to Old English Language and Lit |
| 3378 Topics in Film & Lit | 4569 Digital Media & English Studies | 5720.01 Grad Studies in Shakespeare |
| 3405 Topics in Professional Communication | 4570 Intro to the History of English | 5721.01 Grad Studies in Renaissance Drama |
| 3465 Intermed. Creative Writing: Topics in Fiction | 4571 Studies in the English Language | 5722.01 Grad Studies in Renaissance Poetry |
| 3466 Intermed. Creative Writing: Topics in Poetry | 4572 Traditional Grammar & Usage | 5723.01 Grad Studies in Renaissance Lit/Culture |
| 3467S Issues & Methods in Tutoring Writing | 4573.01 Rhetorical Theory & Criticism | --- |

Integrated Math and English Major: Math Education Concentration

Part A: Required Prerequisites (22 hrs)

| | |
|--|---|
| | Econ 2001 Principles of Microeconomics (3 hrs) |
| | Econ 2002 Principles of Macroeconomics (3 hrs) |
| | English 1110 First Year English Composition (3 hrs) |
| | English 2367 Second Year Writing (3 hrs) |
| | Math 1151 Calculus I (5 hrs) |
| | Math 1152 Calculus II (5 hrs) |

Part B: Major Program (47-48 hrs)

Core courses for track (29-30 hrs)

| | |
|--|---|
| | CSE 2111 Modeling and Problem Solving with Spreadsheets and Databases (3 hrs) |
| | English 2269 Digital Media Composing (3 hrs) |
| | Math 1295 Introductory Seminar (1 hr) |
| | Math 2153 Calculus III (4 hrs) |
| | Math 2255 Differential Equations and Their Applications (3 hrs) |
| | Math 2568 Linear Algebra (3 hrs) |
| | Math 3345 Foundations of Higher Mathematics (3 hrs) |
| | Math 4504 History of Mathematics (3 hrs) |
| | Math 4530 or Stat 4201 Probability or Introduction to Mathematical Statistics I (3-4 hrs) |
| | English/Math 4420 Integrated Major Capstone Course (3 hrs) |

Choose **One** Diversity in English studies course from the list below (3 hrs)

| | | |
|---|---|---|
| 4577.01 Folklore I: Groups & Communities | 4586 Studies in American Indian Literature/Culture | 4592 Topics in Women in Literature and Culture |
| 4580 Topics in LGBTQ Literatures/Cultures | 4587 Studies in Asian American Literature/Culture | 4597.01 Disability Experience in the Contemporary World |
| 4581 Topics in U.S. Ethnic Literatures | 4588 Studies in Latino/a Literature/Culture | 4601 Language & the Black Experience |
| 4582 Topics in African-American Lit | 4589 Studying the Margins: Power, Language, & Culture | |

Choose **One** English Methods course from the list below (3 hrs)

| | | |
|------------------------|---|--|
| 2270 Intro to Folklore | 3379 Methods for the Study of Rhetoric, Writing, and Literacy | 3398 Methods for the Study of Literature |
|------------------------|---|--|

Choose **One** English course at the *2000-level or higher* from the list below (3 hrs)

Choose **Three** English Courses at the *3000-level or higher* from the list below (9 hrs)

| | | |
|---|--|--|
| 2201 British Lit: Medieval through 1800 | 3468 Intermed. Creative Writing: Topics in Creative Nonfiction | 4573.02 Rhetoric & Social Action |
| 2201H British Lit: Medieval through 1800 | 3597.03 Environmental Citizenship | 4574 History & Theories of Writing |
| 2202 British Lit: 1800 to Present | 3662 Intro to Literary Publishing | 4575 Topics in Literary Forms & Themes |
| 2202H British Lit: 1800 to Present | 4150 Cultures of Professional Writing (CSTW 4150) | 4576.01 History of Critical Theory I: Plato to Aestheticism |
| 2220 Intro to Shakespeare | 4400 Literary Locations | 4576.02 History of Critical Theory II: 1900 to Present |
| 2220H Intro to Shakespeare | 4513 Intro to Medieval Lit | 4576.03 History of Critical Theory III: Issues and Movements |
| 2260 Intro to Poetry | 4514 Middle English Lit | 4577.01 Folklore I: Groups & Communities |
| 2260H Intro to Poetry | 4515 Chaucer | 4577.02 Folklore II: Genres, Form, Meaning, & Use |
| 2261 Intro to Fiction | 4520.01 Shakespeare | 4577.03 Folklore III: Issues & Methods |
| 2261H Intro to Fiction | 4520.02 Topics in Shakespeare | 4578 Topics in Film |
| 2262 Intro to Drama | 4521 Renaissance Drama | 4578H Topics in Film |
| 2262H Intro to Drama | 4522 Renaissance Poetry | 4579 Topics in Nonfiction |
| 2263 Intro to Film | 4523 Topics in Renaissance Lit/Culture | 4580 Topics in LGBTQ Literatures/Cultures |
| 2264 Intro to Popular Culture Studies | 4531 Restoration & 18th-Century Lit | 4581 Topics in U.S. Ethnic Literatures |
| 2265 Writing of Fiction I | 4533 Early British Novel: Origins to 1830 | 4582 Topics in African-American Lit |
| 2266 Writing of Poetry I | 4535 Topics in Restoration & 18th-Century British Lit/Culture | 4583 Topics in World Lit in English |
| 2267 Intro to Creative Writing | 4540 19th-Century British Poetry | 4584 Topics in Literacy Studies |
| 2268 Writing of Creative Nonfiction I | 4542 19th-Century British Novel | 4585 History of Literacy |
| 2269 Digital Media Composing | 4543 20th-Century British Fiction | 4586 Studies in American Indian Lit/Culture |
| 2270 Intro to Folklore | 4547 20th-Century Poetry | 4587 Studies in Asian American Lit/Culture |
| 2270H Intro to Folklore | 4549 Modern Drama | 4588 Studies in Latino/a Lit/Culture |
| 2275 Thematic Approaches to Lit | 4550 Topics in Colonial & Early National Lit of the U.S. | 4589 Studying the Margins: Language, Power, & Culture |
| 2276 Arts of Persuasion | 4551 Topics in 19th-Century U.S. Lit | 4590.01H The Middle Ages |
| 2277 Intro to Disability Studies | 4552 Topics in American Poetry Through 1915 | 4590.02H The Renaissance |
| 3379 Intro to Writing, Rhetoric, Literacy | 4553 20th-Century U.S. Fiction | 4590.03H The Long 18th Century |
| 2280 English Bible | 4554 English Studies & Global Human Rights | 4590.04H Romanticism |
| 2280H English Bible | 4555 Rhetoric and Legal Argumentation | 4590.05H The Later 19th Century |
| 2281 Intro to African-American Lit | 4559 Intro to Narrative & Narrative Theory | 4590.06H The Modern Period |
| 2282 Intro to Queer Studies | 4560 Topics in Poetry | 4590.07H Lit in English after 1945 |
| 2290 Colonial and U.S. Lit to 1865 | 4561 Studies in Fictional & Nonfictional Narrative | 4590.08H U.S. & Colonial Lit |
| 2291 U.S. Lit: 1865 to Present | 4562 Studies in Lit & the Other Arts | 4590.09H Topics in Lit & Literary Interpretation |
| 2296H Lit and Intellectual Movements | 4563 Contemporary Lit | 4591.01H Topics in the Study of Creative Writing |
| 3398 Intro to the Study of Lit | 4564.01 Major Author, Medieval & Renaissance British Lit | 4591.02H Topics in the Study of Rhetoric |
| 3271 Structure of the English Lang | 4564.02 Major Author, 18th- & 19th-Century British Lit | 4592 Topics in Women in Lit/Culture |
| 3304 Business & Professional Writing | 4564.03 Major Author, American Lit to 1900 | 4595 Literature & Law |
| 3305 Technical Writing | 4564.04 Major Author, 20th-Century Lit | 4597.01 Disability Experience in the Contemporary World |
| 3331 Thinking Theoretically | 4565 Writing of Fiction II | 4597.02 American Regional Cultures in Transition |

| | | |
|--|---|---|
| 3361 Narrative & Medicine | 4566 Writing of Poetry II | 5191 English Internship |
| 3364 Topics in Popular Culture | 4567S Rhetoric & Community Service: A Writing Seminar | 5664 Studies in Graphic Narrative |
| 3372 Science Fiction and/or Fantasy | 4568 Writing of Creative Nonfiction II | 5710.01 Intro to Old English Language and Lit |
| 3378 Topics in Film & Lit | 4569 Digital Media & English Studies | 5720.01 Grad Studies in Shakespeare |
| 3405 Topics in Professional Communication | 4570 Intro to the History of English | 5721.01 Grad Studies in Renaissance Drama |
| 3465 Intermed. Creative Writing: Topics in Fiction | 4571 Studies in the English Language | 5722.01 Grad Studies in Renaissance Poetry |
| 3466 Intermed. Creative Writing: Topics in Poetry | 4572 Traditional Grammar & Usage | 5723.01 Grad Studies in Renaissance Lit/Culture |
| 3467S Issues & Methods in Tutoring Writing | 4573.01 Rhetorical Theory & Criticism | --- |

Integrated Math and English Major: Financial/Actuarial Concentration

Part A: Required Prerequisites (22 hrs)

| | |
|--|---|
| | Econ 2001 Principles of Microeconomics (3 hrs) |
| | Econ 2002 Principles of Macroeconomics (3 hrs) |
| | English 1110 First Year English Composition (3 hrs) |
| | English 2367 Second Year Writing (3 hrs) |
| | Math 1151 Calculus I (5 hrs) |
| | Math 1152 Calculus II (5 hrs) |

Part B: Major Program (48-49 hrs)

Core courses for track (30-31 hrs)

| | |
|--|---|
| | CSE 2111 Modeling and Problem Solving with Spreadsheets and Databases (3 hrs) |
| | English 2269 Digital Media Composing (3 hrs) |
| | Math 1295 Introductory Seminar (1 hr) |
| | Math 2153 Calculus III (4 hrs) |
| | Math 2568 Linear Algebra (3 hrs) |
| | Math 3618 Theory of Interest (3 hrs) |
| | Math 4530 or Stat 4201 Probability or Introduction to Mathematical Statistics I (3-4 hrs) |
| | Math 5632 Financial Economics (3 hrs) |
| | Stat 4202 Introduction to Mathematical Statistics II (4 hrs) |
| | English/Math 4420 Integrated Major Capstone Course (3 hrs) |

Choose **One** Diversity in English studies course from the list below (3 hrs)

| | | |
|---|---|---|
| 4577.01 Folklore I: Groups & Communities | 4586 Studies in American Indian Literature/Culture | 4592 Topics in Women in Literature and Culture |
| 4580 Topics in LGBTQ Literatures/Cultures | 4587 Studies in Asian American Literature/Culture | 4597.01 Disability Experience in the Contemporary World |
| 4581 Topics in U.S. Ethnic Literatures | 4588 Studies in Latino/a Literature/Culture | 4601 Language & the Black Experience |
| 4582 Topics in African-American Lit | 4589 Studying the Margins: Power, Language, & Culture | |

Choose **One** English Methods course from the list below (3 hrs)

| | | |
|------------------------|---|--|
| 2270 Intro to Folklore | 3379 Methods for the Study of Rhetoric, Writing, and Literacy | 3398 Methods for the Study of Literature |
|------------------------|---|--|

Choose **One** English course at the *2000-level or higher* from the list below (3 hrs)

Choose **Three** English Courses at the *3000-level or higher* from the list below (9 hrs)

| | | |
|---|--|--|
| 2201 British Lit: Medieval through 1800 | 3468 Intermed. Creative Writing: Topics in Creative Nonfiction | 4573.02 Rhetoric & Social Action |
| 2201H British Lit: Medieval through 1800 | 3597.03 Environmental Citizenship | 4574 History & Theories of Writing |
| 2202 British Lit: 1800 to Present | 3662 Intro to Literary Publishing | 4575 Topics in Literary Forms & Themes |
| 2202H British Lit: 1800 to Present | 4150 Cultures of Professional Writing (CSTW 4150) | 4576.01 History of Critical Theory I: Plato to Aestheticism |
| 2220 Intro to Shakespeare | 4400 Literary Locations | 4576.02 History of Critical Theory II: 1900 to Present |
| 2220H Intro to Shakespeare | 4513 Intro to Medieval Lit | 4576.03 History of Critical Theory III: Issues and Movements |
| 2260 Intro to Poetry | 4514 Middle English Lit | 4577.01 Folklore I: Groups & Communities |
| 2260H Intro to Poetry | 4515 Chaucer | 4577.02 Folklore II: Genres, Form, Meaning, & Use |
| 2261 Intro to Fiction | 4520.01 Shakespeare | 4577.03 Folklore III: Issues & Methods |
| 2261H Intro to Fiction | 4520.02 Topics in Shakespeare | 4578 Topics in Film |
| 2262 Intro to Drama | 4521 Renaissance Drama | 4578H Topics in Film |
| 2262H Intro to Drama | 4522 Renaissance Poetry | 4579 Topics in Nonfiction |
| 2263 Intro to Film | 4523 Topics in Renaissance Lit/Culture | 4580 Topics in LGBTQ Literatures/Cultures |
| 2264 Intro to Popular Culture Studies | 4531 Restoration & 18th-Century Lit | 4581 Topics in U.S. Ethnic Literatures |
| 2265 Writing of Fiction I | 4533 Early British Novel: Origins to 1830 | 4582 Topics in African-American Lit |
| 2266 Writing of Poetry I | 4535 Topics in Restoration & 18th-Century British Lit/Culture | 4583 Topics in World Lit in English |
| 2267 Intro to Creative Writing | 4540 19th-Century British Poetry | 4584 Topics in Literacy Studies |
| 2268 Writing of Creative Nonfiction I | 4542 19th-Century British Novel | 4585 History of Literacy |
| 2269 Digital Media Composing | 4543 20th-Century British Fiction | 4586 Studies in American Indian Lit/Culture |
| 2270 Intro to Folklore | 4547 20th-Century Poetry | 4587 Studies in Asian American Lit/Culture |
| 2270H Intro to Folklore | 4549 Modern Drama | 4588 Studies in Latino/a Lit/Culture |
| 2275 Thematic Approaches to Lit | 4550 Topics in Colonial & Early National Lit of the U.S. | 4589 Studying the Margins: Language, Power, & Culture |
| 2276 Arts of Persuasion | 4551 Topics in 19th-Century U.S. Lit | 4590.01H The Middle Ages |
| 2277 Intro to Disability Studies | 4552 Topics in American Poetry Through 1915 | 4590.02H The Renaissance |
| 3379 Intro to Writing, Rhetoric, Literacy | 4553 20th-Century U.S. Fiction | 4590.03H The Long 18th Century |
| 2280 English Bible | 4554 English Studies & Global Human Rights | 4590.04H Romanticism |
| 2280H English Bible | 4555 Rhetoric and Legal Argumentation | 4590.05H The Later 19th Century |
| 2281 Intro to African-American Lit | 4559 Intro to Narrative & Narrative Theory | 4590.06H The Modern Period |
| 2282 Intro to Queer Studies | 4560 Topics in Poetry | 4590.07H Lit in English after 1945 |
| 2290 Colonial and U.S. Lit to 1865 | 4561 Studies in Fictional & Nonfictional Narrative | 4590.08H U.S. & Colonial Lit |
| 2291 U.S. Lit: 1865 to Present | 4562 Studies in Lit & the Other Arts | 4590.09H Topics in Lit & Literary Interpretation |
| 2296H Lit and Intellectual Movements | 4563 Contemporary Lit | 4591.01H Topics in the Study of Creative Writing |
| 3398 Intro to the Study of Lit | 4564.01 Major Author, Medieval & Renaissance British Lit | 4591.02H Topics in the Study of Rhetoric |
| 3271 Structure of the English Lang | 4564.02 Major Author, 18th- & 19th-Century British Lit | 4592 Topics in Women in Lit/Culture |
| 3304 Business & Professional Writing | 4564.03 Major Author, American Lit to 1900 | 4595 Literature & Law |
| 3305 Technical Writing | 4564.04 Major Author, 20th-Century Lit | 4597.01 Disability Experience in the Contemporary World |
| 3331 Thinking Theoretically | 4565 Writing of Fiction II | 4597.02 American Regional Cultures in Transition |

| | | |
|--|---|---|
| 3361 Narrative & Medicine | 4566 Writing of Poetry II | 5191 English Internship |
| 3364 Topics in Popular Culture | 4567S Rhetoric & Community Service: A Writing Seminar | 5664 Studies in Graphic Narrative |
| 3372 Science Fiction and/or Fantasy | 4568 Writing of Creative Nonfiction II | 5710.01 Intro to Old English Language and Lit |
| 3378 Topics in Film & Lit | 4569 Digital Media & English Studies | 5720.01 Grad Studies in Shakespeare |
| 3405 Topics in Professional Communication | 4570 Intro to the History of English | 5721.01 Grad Studies in Renaissance Drama |
| 3465 Intermed. Creative Writing: Topics in Fiction | 4571 Studies in the English Language | 5722.01 Grad Studies in Renaissance Poetry |
| 3466 Intermed. Creative Writing: Topics in Poetry | 4572 Traditional Grammar & Usage | 5723.01 Grad Studies in Renaissance Lit/Culture |
| 3467S Issues & Methods in Tutoring Writing | 4573.01 Rhetorical Theory & Criticism | --- |

Integrated Math and English Major: Theoretical Math Concentration

Part A: Required Prerequisites (22 hrs)

| | |
|--|---|
| | Econ 2001 Principles of Microeconomics (3 hrs) |
| | Econ 2002 Principles of Macroeconomics (3 hrs) |
| | English 1110 First Year English Composition (3 hrs) |
| | English 2367 Second Year Writing (3 hrs) |
| | Math 1151 Calculus I (5 hrs) |
| | Math 1152 Calculus II (5 hrs) |

Part B: Major Program (50-51 hrs)

Core courses for track (32-33 hrs)

| | |
|--|---|
| | CSE 2111 Modeling and Problem Solving with Spreadsheets and Databases (3 hrs) |
| | English 2269 Digital Media Composing (3 hrs) |
| | Math 1295 Introductory Seminar (1 hr) |
| | Math 2153 Calculus III (4 hrs) |
| | Math 2255 Differential Equations and Their Applications (3 hrs) |
| | Math 2568 Linear Algebra (3 hrs) |
| | Math 3345 Foundations of Higher Mathematics (3 hrs) |
| | Math 4530 or Stat 4201 Probability or Introduction to Mathematical Statistics I (3-4 hrs) |
| | Math 4547 Introductory Analysis I (3 hrs) |
| | Math 4580 Abstract Algebra I (3 hrs) |
| | English/Math 4420 Integrated Major Capstone Course (3 hrs) |

Choose **One** Diversity in English studies course from the list below (3 hrs)

| | | |
|---|---|---|
| 4577.01 Folklore I: Groups & Communities | 4586 Studies in American Indian Literature/Culture | 4592 Topics in Women in Literature and Culture |
| 4580 Topics in LGBTQ Literatures/Cultures | 4587 Studies in Asian American Literature/Culture | 4597.01 Disability Experience in the Contemporary World |
| 4581 Topics in U.S. Ethnic Literatures | 4588 Studies in Latino/a Literature/Culture | 4601 Language & the Black Experience |
| 4582 Topics in African-American Lit | 4589 Studying the Margins: Power, Language, & Culture | |

Choose **One** English Methods course from the list below (3 hrs)

| | | |
|------------------------|---|--|
| 2270 Intro to Folklore | 3379 Methods for the Study of Rhetoric, Writing, and Literacy | 3398 Methods for the Study of Literature |
|------------------------|---|--|

Choose **One** English course at the *2000-level or higher* from the list below (3 hrs)

Choose **Three** English Courses at the *3000-level or higher* from the list below (9 hrs)

| | | |
|---|--|--|
| 2201 British Lit: Medieval through 1800 | 3468 Intermed. Creative Writing: Topics in Creative Nonfiction | 4573.02 Rhetoric & Social Action |
| 2201H British Lit: Medieval through 1800 | 3597.03 Environmental Citizenship | 4574 History & Theories of Writing |
| 2202 British Lit: 1800 to Present | 3662 Intro to Literary Publishing | 4575 Topics in Literary Forms & Themes |
| 2202H British Lit: 1800 to Present | 4150 Cultures of Professional Writing (CSTW 4150) | 4576.01 History of Critical Theory I: Plato to Aestheticism |
| 2220 Intro to Shakespeare | 4400 Literary Locations | 4576.02 History of Critical Theory II: 1900 to Present |
| 2220H Intro to Shakespeare | 4513 Intro to Medieval Lit | 4576.03 History of Critical Theory III: Issues and Movements |
| 2260 Intro to Poetry | 4514 Middle English Lit | 4577.01 Folklore I: Groups & Communities |
| 2260H Intro to Poetry | 4515 Chaucer | 4577.02 Folklore II: Genres, Form, Meaning, & Use |
| 2261 Intro to Fiction | 4520.01 Shakespeare | 4577.03 Folklore III: Issues & Methods |
| 2261H Intro to Fiction | 4520.02 Topics in Shakespeare | 4578 Topics in Film |
| 2262 Intro to Drama | 4521 Renaissance Drama | 4578H Topics in Film |
| 2262H Intro to Drama | 4522 Renaissance Poetry | 4579 Topics in Nonfiction |
| 2263 Intro to Film | 4523 Topics in Renaissance Lit/Culture | 4580 Topics in LGBTQ Literatures/Cultures |
| 2264 Intro to Popular Culture Studies | 4531 Restoration & 18th-Century Lit | 4581 Topics in U.S. Ethnic Literatures |
| 2265 Writing of Fiction I | 4533 Early British Novel: Origins to 1830 | 4582 Topics in African-American Lit |
| 2266 Writing of Poetry I | 4535 Topics in Restoration & 18th-Century British Lit/Culture | 4583 Topics in World Lit in English |
| 2267 Intro to Creative Writing | 4540 19th-Century British Poetry | 4584 Topics in Literacy Studies |
| 2268 Writing of Creative Nonfiction I | 4542 19th-Century British Novel | 4585 History of Literacy |
| 2269 Digital Media Composing | 4543 20th-Century British Fiction | 4586 Studies in American Indian Lit/Culture |
| 2270 Intro to Folklore | 4547 20th-Century Poetry | 4587 Studies in Asian American Lit/Culture |
| 2270H Intro to Folklore | 4549 Modern Drama | 4588 Studies in Latino/a Lit/Culture |
| 2275 Thematic Approaches to Lit | 4550 Topics in Colonial & Early National Lit of the U.S. | 4589 Studying the Margins: Language, Power, & Culture |
| 2276 Arts of Persuasion | 4551 Topics in 19th-Century U.S. Lit | 4590.01H The Middle Ages |
| 2277 Intro to Disability Studies | 4552 Topics in American Poetry Through 1915 | 4590.02H The Renaissance |
| 3379 Intro to Writing, Rhetoric, Literacy | 4553 20th-Century U.S. Fiction | 4590.03H The Long 18th Century |
| 2280 English Bible | 4554 English Studies & Global Human Rights | 4590.04H Romanticism |
| 2280H English Bible | 4555 Rhetoric and Legal Argumentation | 4590.05H The Later 19th Century |
| 2281 Intro to African-American Lit | 4559 Intro to Narrative & Narrative Theory | 4590.06H The Modern Period |
| 2282 Intro to Queer Studies | 4560 Topics in Poetry | 4590.07H Lit in English after 1945 |
| 2290 Colonial and U.S. Lit to 1865 | 4561 Studies in Fictional & Nonfictional Narrative | 4590.08H U.S. & Colonial Lit |
| 2291 U.S. Lit: 1865 to Present | 4562 Studies in Lit & the Other Arts | 4590.09H Topics in Lit & Literary Interpretation |
| 2296H Lit and Intellectual Movements | 4563 Contemporary Lit | 4591.01H Topics in the Study of Creative Writing |
| 3398 Intro to the Study of Lit | 4564.01 Major Author, Medieval & Renaissance British Lit | 4591.02H Topics in the Study of Rhetoric |
| 3271 Structure of the English Lang | 4564.02 Major Author, 18th- & 19th-Century British Lit | 4592 Topics in Women in Lit/Culture |
| 3304 Business & Professional Writing | 4564.03 Major Author, American Lit to 1900 | 4595 Literature & Law |
| 3305 Technical Writing | 4564.04 Major Author, 20th-Century Lit | 4597.01 Disability Experience in the Contemporary World |
| 3331 Thinking Theoretically | 4565 Writing of Fiction II | 4597.02 American Regional Cultures in Transition |

| | | |
|--|---|---|
| 3361 Narrative & Medicine | 4566 Writing of Poetry II | 5191 English Internship |
| 3364 Topics in Popular Culture | 4567S Rhetoric & Community Service: A Writing Seminar | 5664 Studies in Graphic Narrative |
| 3372 Science Fiction and/or Fantasy | 4568 Writing of Creative Nonfiction II | 5710.01 Intro to Old English Language and Lit |
| 3378 Topics in Film & Lit | 4569 Digital Media & English Studies | 5720.01 Grad Studies in Shakespeare |
| 3405 Topics in Professional Communication | 4570 Intro to the History of English | 5721.01 Grad Studies in Renaissance Drama |
| 3465 Intermed. Creative Writing: Topics in Fiction | 4571 Studies in the English Language | 5722.01 Grad Studies in Renaissance Poetry |
| 3466 Intermed. Creative Writing: Topics in Poetry | 4572 Traditional Grammar & Usage | 5723.01 Grad Studies in Renaissance Lit/Culture |
| 3467S Issues & Methods in Tutoring Writing | 4573.01 Rhetorical Theory & Criticism | --- |

Appendix 3

Feedback from Insurance and Finance Companies that Recruit OSU Students Regarding Their Level of Interest in an Integrated Major in English and Math

Collected by Chunsheng Ban, Professor of Math, OSU

RE: Integrated Major at OSU
 Martin Molloy [martin.molloy@aonhewitt.com]
 Sent: Wednesday, September 30, 2015 5:40 PM
 To: Ban, Chunsheng

As someone who majored in Actuarial Science with a minor in English, I find this very appealing.

I will circulate to others here to get their opinions. We can talk on Thursday about how much value this adds.

Martin E. Molloy, E.A., F.S.A. | Associate Partner
 Aon Hewitt | Retirement and Investment
 445 Hutchinson Ave. | Suite 900 | Columbus, OH 43235
 t 614 825-9412 | f 614 436-7988
 martin.molloy@aonhewitt.com | aonhewitt.com | retirementandinvestmentblog.aon.com

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 RE: Integrated Major at OSU
 Stang, Doug [Doug_Stang@CINFIN.com]
 Sent: Thursday, October 01, 2015 2:14 PM
 To: Ban, Chunsheng

Professor Ban,

I would be very interested in students with this major, and I think several of my Cincinnati colleagues would be interested in students with this major as well.

A persistent problem I encounter with actuaries, as a group, is a large portion of them do not like to write or they do not write well. Employers, as well as evolving actuarial standards of practice, continually call for more detailed, clearly written reports, analyses, and summaries of actuarial work. Meeting those demands has proven challenging, at times, because of the written-communication shortcomings of a significant portion of our actuaries.

The written-presentation skills (e.g., table, chart, and slide design) of a surprising number of our actuaries are also wanting.

I think employers would find students with this major attractive, were they to successfully combine the strong technical skills of the typical actuary with similarly strong written communication skills.

Thanks,

Doug

RE: Integrated Major at OSU
 Ellwood, Cathy [Cathy.Ellwood@StateAuto.com]
 Sent: Thursday, October 01, 2015 4:32 PM
 To: Ban, Chunsheng
 Cc: Schmidt, Leora [Leora.Schmidt@StateAuto.com]

Dr. Ban -

Absolutely! The students who stand out when we interview for summer intern opportunities or full-time jobs are those who have solid academics/healthy GPAs (3.0+), have passed at least one exam (required for full-time employment, but not internships), and are articulate in conversation and when discussing business topics. These are the types of students/candidates who can explain the technical analysis to business partners in layman's terms and who are able to take the results of the analysis and relay it in ways that their business partners can put into action. This is truly where "the rubber meets the road."

The combined major would further emphasize the importance of these two skill sets and how they relate to career success.

If you'd like to discuss further, don't hesitate to let me know.

You take care, and thanks for the opportunity to weigh in.

RE: Integrated Major at OSU
 Fu, Luyang [Luyang_Fu@CINFIN.com]
 Sent: Friday, October 02, 2015 8:26 AM
 To: Ban, Chunsheng

Professor Ban,

My team have very unique demands. Personally, I do not care much about the additional English major. Most of my hires are experienced modelers at FCAS/ACAS level. My occasional entry-level hires are fresh Ph.Ds. Ph.Ds can usually communicate well (good written skills after the pain of writing a dissertation and good speaking skills from TA experience).

Having said that, communication is very important for actuaries. When making the hiring decisions, I evaluate candidates from three perspectives: know the business (insurance and actuarial stuff); know the technics (statistics such as regression, multivariate analysis, econometrics); know how to communicate. English major should help students to improve both written and oral communication skills.

Hope that my answers help.

Luyang

RE: Integrated Major at OSU
 Lin, Ken [LinK@Grangeinsurance.com]
 Sent: Friday, October 02, 2015 12:52 PM
 To: Ban, Chunsheng

Hi Chunsheng,

I think the integrated Math/Actuarial Science and English major is a great idea. Often we come across candidates that are strong analytically but weak on communication, and it seems to me that this major would address that situation directly. So, 2 thumbs up from me - good luck and nice to see you again at the reception!

Best,
 Ken

RE: Integrated Major at OSU
 Steven Diamond [Steven.Diamond@safeauto.com]

Sent: Monday, October 05, 2015 8:07 AM
 To: Ban, Chunsheng

Dear Chunsheng,

My corporate recruiter, Allison Thomas, and I enjoyed the ActSci reception you held on campus. We met many bright, young students who might be ideal candidates for our summer intern program.

Evan McKee, SVP of Product Management and I will be attending the CAS Seminar on the 20th. We look forward to participating in the evening's festivities. Evan will be on the panel to talk about SafeAuto.

In comment to your Math/ActSci and English program; I think communication skills are a critical component in today's workforce that is sometimes overlooked. It's a coincidence you mention this in your email. While I was speaking to a group of freshman students at the reception, I enlightened them on the importance of communication skills as a key competence when applying for an internship/job. I shared with them that when it comes time to finding employment, many candidates will have the same, if not better set of skills than them but what can separate them from the others is personality; the ability to communicate. So I definitely like integrating the two together.

I look forward to seeing you and the students again in a few weeks.

Kind regards,

Steve

RE: Integrated Major at OSU
 Lacker, Kimberly E. [Kimberly.Lacker@cna.com]
 Sent: Monday, October 05, 2015 9:30 AM
 To: Ban, Chunsheng

Hi Professor Ban,

Thank you for having us at the reception! It was great to meet so many faculty and students, and we had a slate of really talented candidates interview the following day. We have several coming into our home office for the next round of interviews as well.

I spoke with the English professor who is involved in this initiative at the reception (her name is escaping me at the moment [Clare Simmons, Professor of English and Director of Undergraduate Studies]). In general, I think the integrated major is a great idea for students

who are interested in both Actuarial Science and English. We look for well-rounded students and this degree combination would likely offer a strong background for students looking to enter the profession. We often interview students with dual degrees and I see this as somewhat similar.

I will say that commitment to exams helps open the door for many students, so I would want to make sure this is not de-emphasized. Employers do want to see commitment to the profession but it sounds like the goal of this degree is still to produce a strong actuarial background, just with more focus on the communication and critical thinking side.

I would be curious to see course requirements for the major!

Best wishes and let me know if there is anything I can do to help.

Kim Lacker
(312) 822-6545

From: Stan Gozur [stan.gozur.m8p1@statefarm.com]
Sent: Thursday, October 08, 2015 10:36 AM
To: Ban, Chunsheng
Subject: RE: Integrated Major at OSU

Thanks for reaching out to us, Dr. Ban. As always, we had a pleasant visit to campus and enjoyed getting to meet your current crop of students.

From my perspective, the quality of your sophomore group is quite impressive. I was surprised how many underclassmen were concentrating on exam prep. Great job! I didn't get the chance to interact as much with your upperclassmen. Although our P&C area has decided not to bring anyone in for onsite interviews, we plan to keep an eye on your sophomores for next year.

Like I mentioned in our presentation to the club, keep encouraging your students to pursue leadership roles and similar opportunities that help round out their development. Along with internships, we place great consideration on students with leadership experiences, with the expectation that they continue to develop these skills upon hire. Active participation in leadership roles have helped us identify students with high initiative and often correlates with above-average communication and relationship building skills. Also, from a prior student's perspective, I encourage your students (especially the younger ones new to interviewing) to explore the resources available at the campus career center (e.g. mock interviews, resume writing, etc.). As you know, the more practice, the better your performance will be in an interview, just as with exams.

I reached out to my department leadership regarding your question on the Math/English dual major. What I gather is that it won't necessarily change our campus recruitment efforts. We

strive to recruit from a variety of majors, although most come from the traditional backgrounds of math, actuarial science and statistics. Just as important to major is the preferred qualifications such as GPA, exams passed, prior work experiences, etc.

Assuming a student can achieve the proposed dual major, we would still be interested mostly in their exam success and actuarial depth. The dual major itself wouldn't necessarily help or hurt your students' standing among peers in our eyes. Considering what I mentioned above about placing importance in a candidate's ability to communicate effectively and demonstrate leadership qualities, then I can see the dual major option being of value to students who may be looking to improve in those areas. As an interviewer, though, I personally would be interested to not just see in transcripts that they've taken these courses, but rather hear from them during the interview the benefits they've gained and how they've implemented the soft skills they've acquired.

One other thought from an interviewer's perspective: How committed to the actuarial profession and exam track are those with dual majors? This is a tough trait to gauge during an interview, and students can benefit by directly asserting their future intentions. It's tricky for us. On one hand, we strive for well-rounded students and want to see their expansive educational background; on the other hand, when we interview a student who has more than one major (often those with significantly different majors), we question if being a career actuary is their long-term goal. For those students with dual degrees who have a hard time clarifying their career intent, it can create a degree of uncertainty when comparing to equally-qualified candidates. It's not the dual degree that raises the flag, but rather any undecidedness an individual with a dual degree has regarding the direction of their career.

If you have other thoughts or questions, don't hesitate to reach back out to me. I'll do the same. Thanks again for your hospitality last week, we greatly appreciate it! Hope the remainder of the year goes smoothly!

Stan Gozur | P&C Actuarial
State Farm Insurance Companies
309.763.8151

From: GINNANS@nationwide.com [GINNANS@nationwide.com]
Sent: Thursday, October 08, 2015 3:05 PM
To: Ban, Chunsheng
Subject: RE: Integrated Major at OSU

As promised, here is a memo responding to your request. Please let me know if you have any questions or would like to have a follow-up conversation.

Take care,
Steve

October 8, 2015

From: Steve Ginnan, VP Chief Actuary

To: Dr. Chunsheng Ban

Re: Math/Actuarial Science and English Integrated Major at OSU

Hello,

Attached are the comments related to the questions you posed: "What do you think of the idea of this integrated major? Will you be interested in students from this major?"

I like the concept of integrating STEM with Humanities. We are always looking for candidates with coursework (and/or other experiences) beyond just the standard math needed to do actuarial work. OSU has certainly called out the right skills: quantitative, analytical thinking, critical thinking, and communication.

However for the humanities side of this, I don't exactly know how you are determining that English was the best fit to achieve your plan. I do like the idea of this well rounded major but feel "English" does not make me think the skills mentioned above will be adequately developed.

I solicited comments and suggestions from both the P&C and Life Actuarial leadership team here at Nationwide. They feel that the most successful associates are those who have strong soft skills in addition to strong analytical skills. Everyone (8 total) that gave responses feels this type of background would be beneficial particularly an integrated major that directly focuses on communication.

If you can't communicate the results of your analysis in a way that engenders trust and confidence, it doesn't really matter how good the analysis is. Explaining technical concepts to non-technical people in an easily understood manner and the ability to create simple pictures of the complex is a highly effective and productive competency. Communication encompasses both written and oral competencies. We routinely send associates to seminars where they are video taped giving an oral presentation in order to provide coaching and constructive feedback. Finally, a technical writing class such as you may find in an engineering school as well as how to compose a presentation for an executive committee would be very helpful.

Actuaries must have a strong command of such competencies as being a business advisor, influencing others, working across the organization, motivating, managing, strategic thinking, as well as being an Actuary!

It is not obvious that an integrated degree of English with Actuarial Science will assure that written and oral communication of the candidate will be superb, but it certainly is a step in a good direction. And to be fair, I do not have the anticipated course offering list to know which classes from the English major would be applicable.

In all, my associates like what you are trying to do although they feel English as a description is not very informative and as a math student coming out of high school it would

have had limited appeal. English brings the connotation of writing papers on books or may seem like it is geared towards the international community where English is a second language. Neither of these would be of the same value as what is described in this memo. Considering all of this, from a resume perspective, I would likely give extra consideration to a candidate with this integrated major more than just a normal actuarial science major. Thanks again for the opportunity to provide feedback.

Warm Regards,
Steve

From: Springer, Lorna (Cleveland) [lorna.springer@towerswatson.com]
Sent: Monday, October 26, 2015 7:03 AM
To: Ban, Chunsheng
Subject: RE: Integrated Major at OSU

Hello!

My apologies for the lateness of this email. I was going through to make sure I didn't miss anything and sure enough, I missed this!

I think that the stress on critical thinking and communication skills, in addition to the strong math background would be very beneficial to those students considering a consulting career. We do sometimes find students who are very bright and incredibly technical but perhaps aren't the best at explaining things or engaging in collaborative conversations, and it seems as if the additional focus would help with that. In addition, the English/communication skills focus could further prepare some of the international students who will eventually be taking the FAP modules.

As someone who was formerly heavily involved in recruiting, I would recommend developing some sort of notice or blast to the larger employers letting them know what the major is when they start to see it on resumes. I assume it will have "math" in the name, which is usually enough to catch our eye!

As I'm sure you know, this is only my personal opinion and not the overall Towers Watson opinion. I'd be happy to answer any other specific questions you have!

I hope all is well.

Lorna

From: Fazio, John (Cleveland) [john.fazio@towerswatson.com]
Sent: Thursday, November 05, 2015 1:01 PM
To: Ban, Chunsheng
Cc: Morrison, George (Cincinnati)

Subject: RE: Integrated Major at OSU

Dr. Ban:

Pardon the delay in my response. George Morrison circulated this among the senior actuary network, and the response was positive. Although most agreed technical skills were critical, most commented that there is a need to have good communications skills to be an actuary, especially if English is not the student's native language. That said, the focus of responses were on communications skills, so this may not be just course work from an English curriculum, but may also include Business Communications coursework.

Let us know if you have any questions.

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From: Mrozek, Matt [Matt.Mrozek@StateAuto.com]
Sent: Thursday, November 05, 2015 4:01 PM
To: Ban, Chunsheng
Subject: RE: Integrated Major at OSU

Dr. Ban,

Sorry for the delay in getting back to you. I reached out to several actuarial managers who hire for entry level positions. While there was unanimous agreement that communication skills are highly valued, there was some concern that a new major might be perceived as less technical. From your description the new major sounds like solid actuarial preparation. But that may be difficult for hiring managers to fully appreciate at the point they are reviewing resumes.

An alternative suggested by several folks would be to have focus areas or concentrations within the existing major. Focus areas could center around communication, analytical thinking, critical thinking, English language, leadership, statistics, business, risk management/insurance, etc., or some combination of elements. I think the suggestion is aiming at basically the same outcome -

- produce well-rounded students who can think and communicate. It's really more a matter of marketing to highlight the additional education (beyond pure actuarial) and minimize perception that there is any less technical preparation.

Hopefully this is useful and not too late. If there is anything else we can provide, please let us know. We very much appreciate the opportunity.

I hope the semester is going well for you. It's hard to believe that it's coming to an end already. Best of luck during these last few weeks.

Best regards,
Matt



Appendix 4

Survey of Local Businesses – surveys sent out by Eddie Pauline, Director of Buckeye Leadership Fellows Program in Fall 2015

My Report

Last Modified: 10/10/2015

1. Tink of a job in your company for which it's a plus to have knowledge and experience in the field of the job, but it's not absolutely necessary. Two recent college graduates have emerged as finalists for this position. Which candidate would you be most likely to hire:

| <u>#</u> | <u>Answer</u> | | <u>Response</u> | <u>%</u> |
|----------|---|---|-----------------|-------------|
| <u>1</u> | <u>Candidate A, who has a college degree and has completed an internship in the field in which you are hiring, but has mediocre writing, oral communication, and critical thinking skills.</u> |  | <u>1</u> | <u>14%</u> |
| <u>2</u> | <u>Candidate B, who has a degree in a Humanities field (such as History, English, a foreign language, or Philosophy) and has excellent writing, critical thinking, and oral communication skills.</u> |  | <u>6</u> | <u>86%</u> |
| | <u>Total</u> | | <u>7</u> | <u>100%</u> |

| Statistic | Value |
|--------------------|-------------|
| Min Value | <u>1</u> |
| Max Value | <u>2</u> |
| Mean | <u>1.86</u> |
| Variance | <u>0.14</u> |
| Standard Deviation | <u>0.38</u> |
| Total Responses | <u>7</u> |

2. Ohio State is considering the development of an integrated major in English and Math. The goal of the major would be to provide students with a well-rounded background in both Math and English, with students choosing one of four tracks (actuarial/financial, applied, theoretical, education). No matter which track they choose, students would do in-depth study in both Math and English. Their plan of study would culminate in a capstone experience in which they would work on an industry, non-profit, or business project requiring the integration of quantitative, analytical thinking, critical thinking, and communication skills. All other things being equal, how would you rate your interest in interviewing a recent college graduate with this degree:

| # | Answer | Response | % |
|----------|---|----------|-------------|
| <u>1</u> | <u>I would be more likely to interview this candidate than others because of the degree.</u> | <u>3</u> | <u>43%</u> |
| <u>2</u> | <u>I would not be more interested in this candidate than others simply because of the degree.</u> | <u>4</u> | <u>57%</u> |
| | <u>Total</u> | <u>7</u> | <u>100%</u> |

| Statistic | Value |
|--------------------|-------|
| Min Value | 1 |
| Max Value | 2 |
| Mean | 1.57 |
| Variance | 0.29 |
| Standard Deviation | 0.53 |
| Total Responses | 7 |

3. If you were to make one recommendation to colleges and universities about how they might better prepare graduates for jobs in your company, what would it be?

Text Response

Require internship and co-ops to be part of the main course work. Students need more exposure to the workforce. I think colleges and universities could also help more students understand how to translate and articulate their skills from the academic world to the working world.

Teach relevant things

mandate an internship, co op, or job shadow

I would suggest training in the areas of company analysis and research (how-to perform these actions), offer etiquette/business communications, and any type of training that would help students identify what type of working environment best fits their personality and desires. Not only is our company seeking candidates who meet our requirements and expectations, but we are looking for candidates who have a strong sense of where they see themselves in the workforce and future.

Communication skills must be high. The business environment is a collaborative one today and team work is critical. The foundation is listening and working together across diverse skill sets.

Basic competency skills like communication, collaboration, etc. are very important to us, however, no particular major means that a student has these skills. Because of this, we typically start with a major or academic path that aligns with what we are looking for and narrow it down from there based on the soft competences we look for.

| Statistic | Value |
|-----------------|-------|
| Total Responses | 6 |

Appendix 5

Capstone Course for the Integrated Major in Mathematics and English

(4420)

Profs. Daniel J. Thompson (Math)

and Zoë Brigley Thompson (English)

Email:

thompson.2455@osu.edu

thompson.3022@osu.edu

Math 4420, Cross-listed as English 4420

Bulletin Description: Math 4420/English 4420: IMME Capstone

Students combine the Mathematics and English knowledge and skills they have acquired in the integrated major through a capstone experience. **Prerequisites:** IMME senior standing or permission of instructor.

Rationale

Students pursuing the Integrated Major in Mathematics and English will learn concepts, develop understanding of theories, and acquire techniques and skills in a variety of courses in Math and English. In their senior year, all integrated majors will take a capstone course that will provide an opportunity to combine and apply the full range of knowledge and skills they have acquired through their previous courses.

Learning Goals

Students who complete this capstone course will have a broader understanding of their own personal strengths and which jobs might require their particular set of skills, thus resulting in a student who is more prepared for entering the workforce. Furthermore, students will learn how literary study can benefit from the skillset of a mathematician, and how a humanistic approach is valuable for both communicating, and understanding the context of, ideas in the mathematical sciences.

The course will be team-taught by Daniel J. Thompson from the Math Department, and Zoë Brigley Thompson in the English Department.

Topics Covered

Introduction: Writing Skills in Math and English

(Taught by Z.B.T and D.J.T.)

The course will open with Z.B.T and D.J.T. team-teaching a week that offers a crash course on writing skills not only in English, but also in Mathematics.

1. Rhetoric

a. Rhetoric: How to Employ Linguistic Sleight of Hand

(Taught by Z.B.T)

This section focuses on rhetoric, and the use of linguistic devices to persuade, influence and convert. It is essential for real-world communication skills to understand how these techniques work, and how students can use them to strengthen their delivery of particular information.

Set text: *Julius Caesar* by William Shakespeare and the film *Julius Caesar* (1953)

b. Proof: From correct to convincing

(Taught by D.J.T)

A mathematical theorem is a journey from a collection of hypotheses to a non-trivial conclusion. A proof of a theorem aims to convince a reader of the mathematical steps required to make this journey. There is a gulf between a proof that contains the right ingredients in the right order, and a clear exposition that communicates the ideas in an optimal way. An “optimal” proof is a matter of style and personal taste, and is where the art comes into mathematical writing. We will look at these issues in the context of some proofs from elementary number theory and geometry. These skills will be useful for any kind of technical writing.

Set text: Lecture notes based on *Foundations of Mathematics* by Stewart and Hall

2. Rules and structure

a. The Poem: How to Work with Pattern and Form

(Taught by Z.B.T.)

This section will introduce students to a number of forms in poetry, and it will provoke discussion about pattern and form in language. Different forms will be considered such as the sestina which uses

repeated end words; the sonnet which uses rhyme, meter, and other strictures; and cynghanedd which dictates repeated consonantal sounds and assonance. How do the strictures and patterns of poetic form shape thought and language? When part of the structure is there, how do writers go about filling in the blanks? The ability to complete patterns is a key aspect of creative and critical thinking, which is a key skill in real-world scenarios.

Set texts: a collection of poems including forms such as the sonnet, sestina, the pantoum, terza rima, and cynghanedd.

b. Elementary geometry: Euclidean and beyond

(Taught by D.J.T)

We will look at the incredible mathematics of the Greeks, including Euclid's axioms for geometry, and how these are used in proofs. Axioms can be thought of as a set of rules to determine a mathematical playground. Of particular interest is Euclid's parallel postulate (In a plane, given a line and a point not on it, there is a unique parallel line through that point), which he initially believed to be a consequence of the other axioms. A major development in the history of mathematics was the realization that the parallel postulate is independent of the axioms of Euclidean geometry, and can be replaced by alternative rules on parallel lines, leading to different geometries, i.e. projective geometry (infinitely many parallel lines) and spherical geometry (no parallel lines).

Set text: Lecture notes based on Jeremy Gray's History of Mathematics

3. Mathematical models

a. The Novel: How to Read Using Mathematical Models

[Taught by Z.B.T.]

Drawing on Franco Moretti's notion of 'distant reading,' this section will consider how one might read the novel differently using a more mathematical kind of mapping. Moretti employs graphs from quantitative history, maps from geography, and trees from evolutionary theory. We will apply Moretti's theories to the set texts, a technique which again relies on recognizing patterns as well as mapping spaces and events.

Set text: *The Great Gatsby* by F. Scott Fitzgerald

b. Population biology: the first mathematical models

(Taught by D.J.T)

We look at the early history of mathematical modeling in Biology: a new era was started when the gloomy English cleric Malthus wrote down an alarming equation for population growth. We will critique Malthus' model and look at Verhulst's more realistic Logistic model. We will discuss the benefits and points of caution of mathematic models in the natural sciences.

Set text: Lecture notes based on *Mathematical Models in Biology* by Edelstein-Keshet.

4. Randomness

a. Biography: How to Order the Chaos of a Life

[Taught by Z.B.T.]

How can we measure the random events of a life? Is there such a thing as fate, or is the course of human existence defined by anarchy and chaos? By looking at the biography of a particular mathematician, Alan Turing, we will consider not only his mathematical contribution, or the poignant events of his life, but also how his story is written and interpreted by the biographer. We will consider how the biographer organizes the narrative before him, and how the mere act of writing of a biography is a philosophical endeavor that imposes order on chaos. We will consider the choices made in writing

about what detail to include and what to omit, and how the writer is always having to make choices about what is significant and worthy of attention, and what is not.

Set text: *Alan Turing: An Enigma* by Andrew Hodges and the film *The Imitation Game* (2015).

b. History of probability

(Taught by D.J.T)

We will look at the journey from deterministic to probabilistic mathematics embodied by mathematicians such as Pascal and Fermat. Initially, this study was motivated by a desire to understand gambling games popular in French society. Later on, the importance of these techniques to core mathematics and the natural sciences was understood, and developed by great mathematicians such as Laplace and Kolmogorov.

Course Conclusion

The conclusion to the course will include visits from business contacts from the Buckeye Leadership Fellows Program (Office of Student Life), and it will see the students give a final presentation.

Assignments

| Assignment | Percentage |
|-----------------------------------|------------|
| Attendance and Class Contribution | 10% |
| Midterm | 25% |
| Presentation | 15% |
| Capstone Project | 50% |

Midterm

The midterm will include a close analysis requiring knowledge of rhetorical and literary terms, and a demonstration of the ability to write clear and convincing proofs of simple results from elementary number theory and geometry.

Capstone Project

The course provides students with both a critical learning experience and an opportunity to synthesize and apply what they learned throughout the program. The final project is based on one of the four topics covered on the course. Students will be given a list of possible projects at the beginning of each section of the course, and they will be able to decide which element they would like to work on. The project will involve the often under-appreciated humanistic side of mathematics, with students encouraged to focus on an area of mathematics in its historical context; combining both a focus on exposition of ideas and its context in societal and philosophical change. This will be combined with an English project that involves engaging with linguistic devices, literary genres, and critical analysis.

Schedule of Topics:

We work on the assumption that there are twelve 110 minute classes.

Week 1: Introductory lectures: On the integration of the humanities and the mathematical sciences

Week 2: Rhetoric I

Week 3: Rhetoric II

Week 4: Rules and structure I

Week 5: Rules and structure II

Week 6: Midterm

Week 7: Mathematical models I

Week 8: Mathematical models II

Week 9: Randomness I

Week 10: Randomness II

Week 11: Presentations

Week 12: Presentations and concluding remarks

Catalog description:

The Capstone Course for the Integrated Major in Mathematics and English is at the intersection of these seemingly distinct fields. The focus is on commonalities and analogies between literary study and skills valuable in the mathematical sciences. Topics include writing styles in both English and Mathematics, structures in English and Math (form in poetry vs axioms in mathematics), and history and philosophy of mathematics from both a literary and scientific stand point.

This 3-credit course will meet once a week for a 110 minute class.

Purpose of course:

The purpose of the course is to demonstrate the full range of skills acquired through the Math and English curriculum, and to appreciate the value of a humanities background for certain scientific skills, and vice versa. Students will demonstrate skills that are valuable for employers by combining rigorous analytic skill, with the ability to communicate ideas, and understand ideas in societal context.

Textbook:

The math component will be based on new lecture notes using various sources as described in the course description. The English component will be based on various set texts as described in the course description.

Prerequisite:

The course is designed for students in the final year of IDEM.

Disability Statement:

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone (614) 292-3307 and VRS (614) 429- 1334; webpage <http://www.ods.ohio-state.edu>.

Academic Misconduct Statement:

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term academic misconduct includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee. For additional information, see the Code of Student Conduct: <http://studentaffairs.osu.edu/resource>

Appendix 6

Curriculum Maps

Curriculum Map: Integrated Major in Math and English – Applied Math Concentration

| Prerequisites | Goal (1) | Goal (2) | Goal (3) | Goal (4) | Goal (5) | Goal (6) |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Econ 2001 | Beginning | Beginning | | | | |
| Econ 2002 | Beginning | Beginning | | | | |
| English 1110 | | | | | Beginning | |
| English 2367 | | | | | Intermediate | |
| Math 1151 | Beginning | Beginning | | | | |
| Math 1152 | Beginning | Beginning | | | | |
| | | | | | | |
| | | | | | | |
| Core Courses in Concentration | | | | | | |
| CSE 2111 | Beginning | | | | | |
| English 2269 | | | Intermediate | | | |
| Math 1295 | Intermediate | Intermediate | | | | |
| Math 2153 | Intermediate | Intermediate | | | | |
| Math 2255 | Intermediate | Intermediate | | | | |
| Math 2568 | Intermediate | Intermediate | | | | |
| Math 3607 | Advanced | Advanced | | | | |
| Math 4530 or Stat 4201 | Advanced | Advanced | | | | |
| Stat 4202 | Advanced | Advanced | | | | |
| | | | | | | |
| | | | | | | |
| Math/English Capstone Course | | | | | | |
| Math/English 4420 | | Advanced | | | | Advanced |
| | | | | | | |
| | | | | | | |
| Diversity in English Studies Courses (Choose one) | | | | | | |
| English 4577.01 | | | | Advanced | | |
| English 4580 | | | | Advanced | | |
| English 4581 | | | | Advanced | | |
| English 4582 | | | | Advanced | | |
| English 4586 | | | | Advanced | | |
| English 4587 | | | | Advanced | | |
| English 4588 | | | | Advanced | | |
| English 4589 | | | | Advanced | | |
| English 4592 | | | | Advanced | | |
| English 4597.01 | | | | Advanced | | |
| English 4601 | | | | Advanced | | |
| | | | | | | |
| | | | | | | |
| Methods Course (Choose one) | | | | | | |
| English 2270 | | | Intermediate | | | |
| English 3379 | | | Intermediate | | | |
| English 3398 | | | Intermediate | | | |

| | | | | | | |
|--|--|--|--------------|--------------|--------------|--|
| | | | | | | |
| | | | | | | |
| English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above) | | | | | | |
| English 2201 | | | Beginning | Beginning | Beginning | |
| English 2201H | | | Beginning | Beginning | Beginning | |
| English 2202 | | | Beginning | Beginning | Beginning | |
| English 2202H | | | Beginning | Beginning | Beginning | |
| English 2220 | | | Beginning | Beginning | Beginning | |
| English 2220H | | | Beginning | Beginning | Beginning | |
| English 2260 | | | Beginning | Beginning | Beginning | |
| English 2260H | | | Beginning | Beginning | Beginning | |
| English 2261 | | | Beginning | Beginning | Beginning | |
| English 2261H | | | Beginning | Beginning | Beginning | |
| English 2262 | | | Beginning | Beginning | Beginning | |
| English 2262H | | | Beginning | Beginning | Beginning | |
| English 2263 | | | Beginning | Beginning | Beginning | |
| English 2264 | | | Beginning | Beginning | Beginning | |
| English 2265 | | | Beginning | Beginning | Beginning | |
| English 2266 | | | Beginning | Beginning | Beginning | |
| English 2267 | | | Beginning | Beginning | Beginning | |
| English 2268 | | | Beginning | Beginning | Beginning | |
| English 2269 | | | Intermediate | Intermediate | Intermediate | |
| English 2270 | | | Intermediate | Intermediate | Intermediate | |
| English 2270H | | | Intermediate | Intermediate | Intermediate | |
| English 2275 | | | Beginning | Beginning | Beginning | |
| English 2276 | | | Beginning | Beginning | Beginning | |
| English 2277 | | | Beginning | Beginning | Beginning | |
| English 2280 | | | Beginning | Beginning | Beginning | |
| English 2280H | | | Beginning | Beginning | Beginning | |
| English 2281 | | | Beginning | Beginning | Beginning | |
| English 2282 | | | Beginning | Beginning | Beginning | |
| English 2290 | | | Beginning | Beginning | Beginning | |
| English 2291 | | | Beginning | Beginning | Beginning | |
| English 2296H | | | Beginning | Beginning | Beginning | |
| English 3271 | | | Intermediate | Intermediate | Intermediate | |
| English 3304 | | | Intermediate | Intermediate | Intermediate | |
| English 3305 | | | Intermediate | Intermediate | Intermediate | |
| English 3331 | | | Intermediate | Intermediate | Intermediate | |
| English 3361 | | | Intermediate | Intermediate | Intermediate | |
| English 3364 | | | Intermediate | Intermediate | Intermediate | |
| English 3372 | | | Intermediate | Intermediate | Intermediate | |
| English 3378 | | | Intermediate | Intermediate | Intermediate | |
| English 3398 | | | Intermediate | Intermediate | Intermediate | |
| English 3405 | | | Intermediate | Intermediate | Intermediate | |
| English 3465 | | | Intermediate | Intermediate | Intermediate | |
| English 3466 | | | Intermediate | Intermediate | Intermediate | |
| English 3467S | | | Intermediate | Intermediate | Intermediate | |
| English 3468 | | | Intermediate | Intermediate | Intermediate | |
| English 3597.03 | | | Intermediate | Intermediate | Intermediate | |

| | | | | | | |
|-----------------|--|--|--------------|--------------|--------------|--|
| English 3662 | | | Intermediate | Intermediate | Intermediate | |
| English 4400 | | | Advanced | Advanced | Advanced | |
| English 4513 | | | Advanced | Advanced | Advanced | |
| English 4514 | | | Advanced | Advanced | Advanced | |
| English 4515 | | | Advanced | Advanced | Advanced | |
| English 4520.01 | | | Advanced | Advanced | Advanced | |
| English 4520.02 | | | Advanced | Advanced | Advanced | |
| English 4521 | | | Advanced | Advanced | Advanced | |
| English 4522 | | | Advanced | Advanced | Advanced | |
| English 4523 | | | Advanced | Advanced | Advanced | |
| English 4531 | | | Advanced | Advanced | Advanced | |
| English 4533 | | | Advanced | Advanced | Advanced | |
| English 4535 | | | Advanced | Advanced | Advanced | |
| English 4540 | | | Advanced | Advanced | Advanced | |
| English 4542 | | | Advanced | Advanced | Advanced | |
| English 4543 | | | Advanced | Advanced | Advanced | |
| English 4547 | | | Advanced | Advanced | Advanced | |
| English 4549 | | | Advanced | Advanced | Advanced | |
| English 4550 | | | Advanced | Advanced | Advanced | |
| English 4551 | | | Advanced | Advanced | Advanced | |
| English 4552 | | | Advanced | Advanced | Advanced | |
| English 4553 | | | Advanced | Advanced | Advanced | |
| English 4554 | | | Advanced | Advanced | Advanced | |
| English 4555 | | | Advanced | Advanced | Advanced | |
| English 4559 | | | Advanced | Advanced | Advanced | |
| English 4560 | | | Advanced | Advanced | Advanced | |
| English 4561 | | | Advanced | Advanced | Advanced | |
| English 4562 | | | Advanced | Advanced | Advanced | |
| English 4563 | | | Advanced | Advanced | Advanced | |
| English 4564.01 | | | Advanced | Advanced | Advanced | |
| English 4564.02 | | | Advanced | Advanced | Advanced | |
| English 4564.03 | | | Advanced | Advanced | Advanced | |
| English 4564.04 | | | Advanced | Advanced | Advanced | |
| English 4565 | | | Advanced | Advanced | Advanced | |
| English 4566 | | | Advanced | Advanced | Advanced | |
| English 4567S | | | Advanced | Advanced | Advanced | |
| English 4568 | | | Advanced | Advanced | Advanced | |
| English 4569 | | | Advanced | Advanced | Advanced | |
| English 4570 | | | Advanced | Advanced | Advanced | |
| English 4571 | | | Advanced | Advanced | Advanced | |
| English 4572 | | | Advanced | Advanced | Advanced | |
| English 4573.01 | | | Advanced | Advanced | Advanced | |
| English 4573.02 | | | Advanced | Advanced | Advanced | |
| English 4574 | | | Advanced | Advanced | Advanced | |
| English 4575 | | | Advanced | Advanced | Advanced | |
| English 4576.01 | | | Advanced | Advanced | Advanced | |
| English 4576.02 | | | Advanced | Advanced | Advanced | |
| English 4576.03 | | | Advanced | Advanced | Advanced | |
| English 4577.01 | | | Advanced | Advanced | Advanced | |
| English 4577.02 | | | Advanced | Advanced | Advanced | |

| | | | | | | |
|------------------|--|--|----------|----------|----------|--|
| English 4577.03 | | | Advanced | Advanced | Advanced | |
| English 4578 | | | Advanced | Advanced | Advanced | |
| English 4578H | | | Advanced | Advanced | Advanced | |
| English 4579 | | | Advanced | Advanced | Advanced | |
| English 4580 | | | Advanced | Advanced | Advanced | |
| English 4581 | | | Advanced | Advanced | Advanced | |
| English 4582 | | | Advanced | Advanced | Advanced | |
| English 4583 | | | Advanced | Advanced | Advanced | |
| English 4584 | | | Advanced | Advanced | Advanced | |
| English 4585 | | | Advanced | Advanced | Advanced | |
| English 4586 | | | Advanced | Advanced | Advanced | |
| English 4587 | | | Advanced | Advanced | Advanced | |
| English 4588 | | | Advanced | Advanced | Advanced | |
| English 4589 | | | Advanced | Advanced | Advanced | |
| English 4590.01H | | | Advanced | Advanced | Advanced | |
| English 4590.02H | | | Advanced | Advanced | Advanced | |
| English 4590.03H | | | Advanced | Advanced | Advanced | |
| English 4590.04H | | | Advanced | Advanced | Advanced | |
| English 4590.05H | | | Advanced | Advanced | Advanced | |
| English 4590.06H | | | Advanced | Advanced | Advanced | |
| English 4590.07H | | | Advanced | Advanced | Advanced | |
| English 4590.08H | | | Advanced | Advanced | Advanced | |
| English 4590.09H | | | Advanced | Advanced | Advanced | |
| English 4591.01H | | | Advanced | Advanced | Advanced | |
| English 4591.02H | | | Advanced | Advanced | Advanced | |
| English 4592 | | | Advanced | Advanced | Advanced | |
| English 4595 | | | Advanced | Advanced | Advanced | |
| English 4597.01 | | | Advanced | Advanced | Advanced | |
| English 4597.02 | | | Advanced | Advanced | Advanced | |
| English 5664 | | | Advanced | Advanced | Advanced | |
| English 5710 | | | Advanced | Advanced | Advanced | |
| English 5721 | | | Advanced | Advanced | Advanced | |
| English 5722 | | | Advanced | Advanced | Advanced | |
| English 5723 | | | Advanced | Advanced | Advanced | |

Curriculum Map: Integrated Major in Math and English – Math Education Concentration

| Prerequisites | Goal (1) | Goal (2) | Goal (3) | Goal (4) | Goal (5) | Goal (6) |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Econ 2001 | Beginning | Beginning | | | | |
| Econ 2002 | Beginning | Beginning | | | | |
| English 1110 | | | | | Beginning | |
| English 2367 | | | | | Intermediate | |
| Math 1151 | Beginning | Beginning | | | | |
| Math 1152 | Beginning | Beginning | | | | |
| | | | | | | |
| | | | | | | |
| Core Courses in Concentration | | | | | | |
| CSE 2111 | Beginning | | | | | |
| English 2269 | | | Intermediate | | | |
| Math 1295 | Intermediate | Intermediate | | | | |
| Math 2153 | Intermediate | Intermediate | | | | |
| Math 2255 | Intermediate | Intermediate | | | | |
| Math 2568 | Intermediate | Intermediate | | | | |
| Math 3345 | Advanced | Advanced | | | | |
| Math 4504 | Advanced | Advanced | | | | |
| Math 4530 or Stat 4201 | Advanced | Advanced | | | | |
| | | | | | | |
| | | | | | | |
| Math/English Capstone Course | | | | | | |
| Math/English 4420 | | Advanced | | | | Advanced |
| | | | | | | |
| | | | | | | |
| Diversity in English Studies Courses (Choose one) | | | | | | |
| English 4577.01 | | | | Advanced | | |
| English 4580 | | | | Advanced | | |
| English 4581 | | | | Advanced | | |
| English 4582 | | | | Advanced | | |
| English 4586 | | | | Advanced | | |
| English 4587 | | | | Advanced | | |
| English 4588 | | | | Advanced | | |
| English 4589 | | | | Advanced | | |
| English 4592 | | | | Advanced | | |
| English 4597.01 | | | | Advanced | | |
| English 4601 | | | | Advanced | | |
| | | | | | | |
| | | | | | | |
| Methods Course (Choose one) | | | | | | |
| English 2270 | | | Intermediate | | | |
| English 3379 | | | Intermediate | | | |
| English 3398 | | | Intermediate | | | |

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| | | | | | | |
| English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above) | | | | | | |
| English 2201 | | | Beginning | Beginning | Beginning | |
| English 2201H | | | Beginning | Beginning | Beginning | |
| English 2202 | | | Beginning | Beginning | Beginning | |
| English 2202H | | | Beginning | Beginning | Beginning | |
| English 2220 | | | Beginning | Beginning | Beginning | |
| English 2220H | | | Beginning | Beginning | Beginning | |
| English 2260 | | | Beginning | Beginning | Beginning | |
| English 2260H | | | Beginning | Beginning | Beginning | |
| English 2261 | | | Beginning | Beginning | Beginning | |
| English 2261H | | | Beginning | Beginning | Beginning | |
| English 2262 | | | Beginning | Beginning | Beginning | |
| English 2262H | | | Beginning | Beginning | Beginning | |
| English 2263 | | | Beginning | Beginning | Beginning | |
| English 2264 | | | Beginning | Beginning | Beginning | |
| English 2265 | | | Beginning | Beginning | Beginning | |
| English 2266 | | | Beginning | Beginning | Beginning | |
| English 2267 | | | Beginning | Beginning | Beginning | |
| English 2268 | | | Beginning | Beginning | Beginning | |
| English 2269 | | | Intermediate | Intermediate | Intermediate | |
| English 2270 | | | Intermediate | Intermediate | Intermediate | |
| English 2270H | | | Intermediate | Intermediate | Intermediate | |
| English 2275 | | | Beginning | Beginning | Beginning | |
| English 2276 | | | Beginning | Beginning | Beginning | |
| English 2277 | | | Beginning | Beginning | Beginning | |
| English 2280 | | | Beginning | Beginning | Beginning | |
| English 2280H | | | Beginning | Beginning | Beginning | |
| English 2281 | | | Beginning | Beginning | Beginning | |
| English 2282 | | | Beginning | Beginning | Beginning | |
| English 2290 | | | Beginning | Beginning | Beginning | |
| English 2291 | | | Beginning | Beginning | Beginning | |
| English 2296H | | | Beginning | Beginning | Beginning | |
| English 3271 | | | Intermediate | Intermediate | Intermediate | |
| English 3304 | | | Intermediate | Intermediate | Intermediate | |
| English 3305 | | | Intermediate | Intermediate | Intermediate | |
| English 3331 | | | Intermediate | Intermediate | Intermediate | |
| English 3361 | | | Intermediate | Intermediate | Intermediate | |
| English 3364 | | | Intermediate | Intermediate | Intermediate | |
| English 3372 | | | Intermediate | Intermediate | Intermediate | |
| English 3378 | | | Intermediate | Intermediate | Intermediate | |
| English 3398 | | | Intermediate | Intermediate | Intermediate | |
| English 3405 | | | Intermediate | Intermediate | Intermediate | |
| English 3465 | | | Intermediate | Intermediate | Intermediate | |
| English 3466 | | | Intermediate | Intermediate | Intermediate | |
| English 3467S | | | Intermediate | Intermediate | Intermediate | |
| English 3468 | | | Intermediate | Intermediate | Intermediate | |
| English 3597.03 | | | Intermediate | Intermediate | Intermediate | |

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|-----------------|--|--|--------------|--------------|--------------|--|
| English 3662 | | | Intermediate | Intermediate | Intermediate | |
| English 4400 | | | Advanced | Advanced | Advanced | |
| English 4513 | | | Advanced | Advanced | Advanced | |
| English 4514 | | | Advanced | Advanced | Advanced | |
| English 4515 | | | Advanced | Advanced | Advanced | |
| English 4520.01 | | | Advanced | Advanced | Advanced | |
| English 4520.02 | | | Advanced | Advanced | Advanced | |
| English 4521 | | | Advanced | Advanced | Advanced | |
| English 4522 | | | Advanced | Advanced | Advanced | |
| English 4523 | | | Advanced | Advanced | Advanced | |
| English 4531 | | | Advanced | Advanced | Advanced | |
| English 4533 | | | Advanced | Advanced | Advanced | |
| English 4535 | | | Advanced | Advanced | Advanced | |
| English 4540 | | | Advanced | Advanced | Advanced | |
| English 4542 | | | Advanced | Advanced | Advanced | |
| English 4543 | | | Advanced | Advanced | Advanced | |
| English 4547 | | | Advanced | Advanced | Advanced | |
| English 4549 | | | Advanced | Advanced | Advanced | |
| English 4550 | | | Advanced | Advanced | Advanced | |
| English 4551 | | | Advanced | Advanced | Advanced | |
| English 4552 | | | Advanced | Advanced | Advanced | |
| English 4553 | | | Advanced | Advanced | Advanced | |
| English 4554 | | | Advanced | Advanced | Advanced | |
| English 4555 | | | Advanced | Advanced | Advanced | |
| English 4559 | | | Advanced | Advanced | Advanced | |
| English 4560 | | | Advanced | Advanced | Advanced | |
| English 4561 | | | Advanced | Advanced | Advanced | |
| English 4562 | | | Advanced | Advanced | Advanced | |
| English 4563 | | | Advanced | Advanced | Advanced | |
| English 4564.01 | | | Advanced | Advanced | Advanced | |
| English 4564.02 | | | Advanced | Advanced | Advanced | |
| English 4564.03 | | | Advanced | Advanced | Advanced | |
| English 4564.04 | | | Advanced | Advanced | Advanced | |
| English 4565 | | | Advanced | Advanced | Advanced | |
| English 4566 | | | Advanced | Advanced | Advanced | |
| English 4567S | | | Advanced | Advanced | Advanced | |
| English 4568 | | | Advanced | Advanced | Advanced | |
| English 4569 | | | Advanced | Advanced | Advanced | |
| English 4570 | | | Advanced | Advanced | Advanced | |
| English 4571 | | | Advanced | Advanced | Advanced | |
| English 4572 | | | Advanced | Advanced | Advanced | |
| English 4573.01 | | | Advanced | Advanced | Advanced | |
| English 4573.02 | | | Advanced | Advanced | Advanced | |
| English 4574 | | | Advanced | Advanced | Advanced | |
| English 4575 | | | Advanced | Advanced | Advanced | |
| English 4576.01 | | | Advanced | Advanced | Advanced | |
| English 4576.02 | | | Advanced | Advanced | Advanced | |
| English 4576.03 | | | Advanced | Advanced | Advanced | |
| English 4577.01 | | | Advanced | Advanced | Advanced | |
| English 4577.02 | | | Advanced | Advanced | Advanced | |

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|------------------|--|--|----------|----------|----------|--|
| English 4577.03 | | | Advanced | Advanced | Advanced | |
| English 4578 | | | Advanced | Advanced | Advanced | |
| English 4578H | | | Advanced | Advanced | Advanced | |
| English 4579 | | | Advanced | Advanced | Advanced | |
| English 4580 | | | Advanced | Advanced | Advanced | |
| English 4581 | | | Advanced | Advanced | Advanced | |
| English 4582 | | | Advanced | Advanced | Advanced | |
| English 4583 | | | Advanced | Advanced | Advanced | |
| English 4584 | | | Advanced | Advanced | Advanced | |
| English 4585 | | | Advanced | Advanced | Advanced | |
| English 4586 | | | Advanced | Advanced | Advanced | |
| English 4587 | | | Advanced | Advanced | Advanced | |
| English 4588 | | | Advanced | Advanced | Advanced | |
| English 4589 | | | Advanced | Advanced | Advanced | |
| English 4590.01H | | | Advanced | Advanced | Advanced | |
| English 4590.02H | | | Advanced | Advanced | Advanced | |
| English 4590.03H | | | Advanced | Advanced | Advanced | |
| English 4590.04H | | | Advanced | Advanced | Advanced | |
| English 4590.05H | | | Advanced | Advanced | Advanced | |
| English 4590.06H | | | Advanced | Advanced | Advanced | |
| English 4590.07H | | | Advanced | Advanced | Advanced | |
| English 4590.08H | | | Advanced | Advanced | Advanced | |
| English 4590.09H | | | Advanced | Advanced | Advanced | |
| English 4591.01H | | | Advanced | Advanced | Advanced | |
| English 4591.02H | | | Advanced | Advanced | Advanced | |
| English 4592 | | | Advanced | Advanced | Advanced | |
| English 4595 | | | Advanced | Advanced | Advanced | |
| English 4597.01 | | | Advanced | Advanced | Advanced | |
| English 4597.02 | | | Advanced | Advanced | Advanced | |
| English 5664 | | | Advanced | Advanced | Advanced | |
| English 5710 | | | Advanced | Advanced | Advanced | |
| English 5721 | | | Advanced | Advanced | Advanced | |
| English 5722 | | | Advanced | Advanced | Advanced | |
| English 5723 | | | Advanced | Advanced | Advanced | |

Curriculum Map: Integrated Major in Math and English – Financial/Actuarial Concentration

| Prerequisites | Goal (1) | Goal (2) | Goal (3) | Goal (4) | Goal (5) | Goal (6) |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Econ 2001 | Beginning | Beginning | | | | |
| Econ 2002 | Beginning | Beginning | | | | |
| English 1110 | | | | | Beginning | |
| English 2367 | | | | | Intermediate | |
| Math 1151 | Beginning | Beginning | | | | |
| Math 1152 | Beginning | Beginning | | | | |
| | | | | | | |
| | | | | | | |
| Core Courses in Concentration | | | | | | |
| CSE 2111 | Beginning | | | | | |
| English 2269 | | | Intermediate | | | |
| Math 1295 | Intermediate | Intermediate | | | | |
| Math 2153 | Intermediate | Intermediate | | | | |
| Math 2568 | Intermediate | Intermediate | | | | |
| Math 3618 | Advanced | Advanced | | | | |
| Math 4530 or Stat 4201 | Advanced | Advanced | | | | |
| Math 5632 | Advanced | Advanced | | | | |
| Stat 4202 | Advanced | Advanced | | | | |
| | | | | | | |
| | | | | | | |
| Math/English Capstone Course | | | | | | |
| Math/English 4420 | | Advanced | | | | Advanced |
| | | | | | | |
| | | | | | | |
| Diversity in English Studies Courses (Choose one) | | | | | | |
| English 4577.01 | | | | Advanced | | |
| English 4580 | | | | Advanced | | |
| English 4581 | | | | Advanced | | |
| English 4582 | | | | Advanced | | |
| English 4586 | | | | Advanced | | |
| English 4587 | | | | Advanced | | |
| English 4588 | | | | Advanced | | |
| English 4589 | | | | Advanced | | |
| English 4592 | | | | Advanced | | |
| English 4597.01 | | | | Advanced | | |
| English 4601 | | | | Advanced | | |
| | | | | | | |
| | | | | | | |
| Methods Course (Choose one) | | | | | | |
| English 2270 | | | Intermediate | | | |
| English 3379 | | | Intermediate | | | |
| English 3398 | | | Intermediate | | | |

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| English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above) | | | | | | |
| English 2201 | | | Beginning | Beginning | Beginning | |
| English 2201H | | | Beginning | Beginning | Beginning | |
| English 2202 | | | Beginning | Beginning | Beginning | |
| English 2202H | | | Beginning | Beginning | Beginning | |
| English 2220 | | | Beginning | Beginning | Beginning | |
| English 2220H | | | Beginning | Beginning | Beginning | |
| English 2260 | | | Beginning | Beginning | Beginning | |
| English 2260H | | | Beginning | Beginning | Beginning | |
| English 2261 | | | Beginning | Beginning | Beginning | |
| English 2261H | | | Beginning | Beginning | Beginning | |
| English 2262 | | | Beginning | Beginning | Beginning | |
| English 2262H | | | Beginning | Beginning | Beginning | |
| English 2263 | | | Beginning | Beginning | Beginning | |
| English 2264 | | | Beginning | Beginning | Beginning | |
| English 2265 | | | Beginning | Beginning | Beginning | |
| English 2266 | | | Beginning | Beginning | Beginning | |
| English 2267 | | | Beginning | Beginning | Beginning | |
| English 2268 | | | Beginning | Beginning | Beginning | |
| English 2269 | | | Intermediate | Intermediate | Intermediate | |
| English 2270 | | | Intermediate | Intermediate | Intermediate | |
| English 2270H | | | Intermediate | Intermediate | Intermediate | |
| English 2275 | | | Beginning | Beginning | Beginning | |
| English 2276 | | | Beginning | Beginning | Beginning | |
| English 2277 | | | Beginning | Beginning | Beginning | |
| English 2280 | | | Beginning | Beginning | Beginning | |
| English 2280H | | | Beginning | Beginning | Beginning | |
| English 2281 | | | Beginning | Beginning | Beginning | |
| English 2282 | | | Beginning | Beginning | Beginning | |
| English 2290 | | | Beginning | Beginning | Beginning | |
| English 2291 | | | Beginning | Beginning | Beginning | |
| English 2296H | | | Beginning | Beginning | Beginning | |
| English 3271 | | | Intermediate | Intermediate | Intermediate | |
| English 3304 | | | Intermediate | Intermediate | Intermediate | |
| English 3305 | | | Intermediate | Intermediate | Intermediate | |
| English 3331 | | | Intermediate | Intermediate | Intermediate | |
| English 3361 | | | Intermediate | Intermediate | Intermediate | |
| English 3364 | | | Intermediate | Intermediate | Intermediate | |
| English 3372 | | | Intermediate | Intermediate | Intermediate | |
| English 3378 | | | Intermediate | Intermediate | Intermediate | |
| English 3398 | | | Intermediate | Intermediate | Intermediate | |
| English 3405 | | | Intermediate | Intermediate | Intermediate | |
| English 3465 | | | Intermediate | Intermediate | Intermediate | |
| English 3466 | | | Intermediate | Intermediate | Intermediate | |
| English 3467S | | | Intermediate | Intermediate | Intermediate | |
| English 3468 | | | Intermediate | Intermediate | Intermediate | |
| English 3597.03 | | | Intermediate | Intermediate | Intermediate | |

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|-----------------|--|--|--------------|--------------|--------------|--|
| English 3662 | | | Intermediate | Intermediate | Intermediate | |
| English 4400 | | | Advanced | Advanced | Advanced | |
| English 4513 | | | Advanced | Advanced | Advanced | |
| English 4514 | | | Advanced | Advanced | Advanced | |
| English 4515 | | | Advanced | Advanced | Advanced | |
| English 4520.01 | | | Advanced | Advanced | Advanced | |
| English 4520.02 | | | Advanced | Advanced | Advanced | |
| English 4521 | | | Advanced | Advanced | Advanced | |
| English 4522 | | | Advanced | Advanced | Advanced | |
| English 4523 | | | Advanced | Advanced | Advanced | |
| English 4531 | | | Advanced | Advanced | Advanced | |
| English 4533 | | | Advanced | Advanced | Advanced | |
| English 4535 | | | Advanced | Advanced | Advanced | |
| English 4540 | | | Advanced | Advanced | Advanced | |
| English 4542 | | | Advanced | Advanced | Advanced | |
| English 4543 | | | Advanced | Advanced | Advanced | |
| English 4547 | | | Advanced | Advanced | Advanced | |
| English 4549 | | | Advanced | Advanced | Advanced | |
| English 4550 | | | Advanced | Advanced | Advanced | |
| English 4551 | | | Advanced | Advanced | Advanced | |
| English 4552 | | | Advanced | Advanced | Advanced | |
| English 4553 | | | Advanced | Advanced | Advanced | |
| English 4554 | | | Advanced | Advanced | Advanced | |
| English 4555 | | | Advanced | Advanced | Advanced | |
| English 4559 | | | Advanced | Advanced | Advanced | |
| English 4560 | | | Advanced | Advanced | Advanced | |
| English 4561 | | | Advanced | Advanced | Advanced | |
| English 4562 | | | Advanced | Advanced | Advanced | |
| English 4563 | | | Advanced | Advanced | Advanced | |
| English 4564.01 | | | Advanced | Advanced | Advanced | |
| English 4564.02 | | | Advanced | Advanced | Advanced | |
| English 4564.03 | | | Advanced | Advanced | Advanced | |
| English 4564.04 | | | Advanced | Advanced | Advanced | |
| English 4565 | | | Advanced | Advanced | Advanced | |
| English 4566 | | | Advanced | Advanced | Advanced | |
| English 4567S | | | Advanced | Advanced | Advanced | |
| English 4568 | | | Advanced | Advanced | Advanced | |
| English 4569 | | | Advanced | Advanced | Advanced | |
| English 4570 | | | Advanced | Advanced | Advanced | |
| English 4571 | | | Advanced | Advanced | Advanced | |
| English 4572 | | | Advanced | Advanced | Advanced | |
| English 4573.01 | | | Advanced | Advanced | Advanced | |
| English 4573.02 | | | Advanced | Advanced | Advanced | |
| English 4574 | | | Advanced | Advanced | Advanced | |
| English 4575 | | | Advanced | Advanced | Advanced | |
| English 4576.01 | | | Advanced | Advanced | Advanced | |
| English 4576.02 | | | Advanced | Advanced | Advanced | |
| English 4576.03 | | | Advanced | Advanced | Advanced | |
| English 4577.01 | | | Advanced | Advanced | Advanced | |
| English 4577.02 | | | Advanced | Advanced | Advanced | |

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|------------------|--|--|----------|----------|----------|--|
| English 4577.03 | | | Advanced | Advanced | Advanced | |
| English 4578 | | | Advanced | Advanced | Advanced | |
| English 4578H | | | Advanced | Advanced | Advanced | |
| English 4579 | | | Advanced | Advanced | Advanced | |
| English 4580 | | | Advanced | Advanced | Advanced | |
| English 4581 | | | Advanced | Advanced | Advanced | |
| English 4582 | | | Advanced | Advanced | Advanced | |
| English 4583 | | | Advanced | Advanced | Advanced | |
| English 4584 | | | Advanced | Advanced | Advanced | |
| English 4585 | | | Advanced | Advanced | Advanced | |
| English 4586 | | | Advanced | Advanced | Advanced | |
| English 4587 | | | Advanced | Advanced | Advanced | |
| English 4588 | | | Advanced | Advanced | Advanced | |
| English 4589 | | | Advanced | Advanced | Advanced | |
| English 4590.01H | | | Advanced | Advanced | Advanced | |
| English 4590.02H | | | Advanced | Advanced | Advanced | |
| English 4590.03H | | | Advanced | Advanced | Advanced | |
| English 4590.04H | | | Advanced | Advanced | Advanced | |
| English 4590.05H | | | Advanced | Advanced | Advanced | |
| English 4590.06H | | | Advanced | Advanced | Advanced | |
| English 4590.07H | | | Advanced | Advanced | Advanced | |
| English 4590.08H | | | Advanced | Advanced | Advanced | |
| English 4590.09H | | | Advanced | Advanced | Advanced | |
| English 4591.01H | | | Advanced | Advanced | Advanced | |
| English 4591.02H | | | Advanced | Advanced | Advanced | |
| English 4592 | | | Advanced | Advanced | Advanced | |
| English 4595 | | | Advanced | Advanced | Advanced | |
| English 4597.01 | | | Advanced | Advanced | Advanced | |
| English 4597.02 | | | Advanced | Advanced | Advanced | |
| English 5664 | | | Advanced | Advanced | Advanced | |
| English 5710 | | | Advanced | Advanced | Advanced | |
| English 5721 | | | Advanced | Advanced | Advanced | |
| English 5722 | | | Advanced | Advanced | Advanced | |
| English 5723 | | | Advanced | Advanced | Advanced | |

Curriculum Map: Integrated Major in Math and English – Theoretical Math Concentration

| Prerequisites | Goal (1) | Goal (2) | Goal (3) | Goal (4) | Goal (5) | Goal (6) |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Econ 2001 | Beginning | Beginning | | | | |
| Econ 2002 | Beginning | Beginning | | | | |
| English 1110 | | | | | Beginning | |
| English 2367 | | | | | Intermediate | |
| Math 1151 | Beginning | Beginning | | | | |
| Math 1152 | Beginning | Beginning | | | | |
| | | | | | | |
| | | | | | | |
| Core Courses in Concentration | | | | | | |
| CSE 2111 | Beginning | | | | | |
| English 2269 | | | Intermediate | | | |
| Math 1295 | Intermediate | Intermediate | | | | |
| Math 2153 | Intermediate | Intermediate | | | | |
| Math 2255 | Intermediate | Intermediate | | | | |
| Math 2568 | Intermediate | Intermediate | | | | |
| Math 3345 | Advanced | Advanced | | | | |
| Math 4530 or Stat 4201 | Advanced | Advanced | | | | |
| Math 4547 | Advanced | Advanced | | | | |
| Math 4580 | Advanced | Advanced | | | | |
| | | | | | | |
| | | | | | | |
| Math/English Capstone Course | | | | | | |
| Math/English 4420 | | Advanced | | | | Advanced |
| | | | | | | |
| | | | | | | |
| Diversity in English Studies Courses (Choose one) | | | | | | |
| English 4577.01 | | | | Advanced | | |
| English 4580 | | | | Advanced | | |
| English 4581 | | | | Advanced | | |
| English 4582 | | | | Advanced | | |
| English 4586 | | | | Advanced | | |
| English 4587 | | | | Advanced | | |
| English 4588 | | | | Advanced | | |
| English 4589 | | | | Advanced | | |
| English 4592 | | | | Advanced | | |
| English 4597.01 | | | | Advanced | | |
| English 4601 | | | | Advanced | | |
| | | | | | | |
| | | | | | | |
| Methods Course (Choose one) | | | | | | |
| English 2270 | | | Intermediate | | | |
| English 3379 | | | Intermediate | | | |

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|--|--|--|--------------|--------------|--------------|--|
| English 3398 | | | Intermediate | | | |
| | | | | | | |
| | | | | | | |
| English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above) | | | | | | |
| English 2201 | | | Beginning | Beginning | Beginning | |
| English 2201H | | | Beginning | Beginning | Beginning | |
| English 2202 | | | Beginning | Beginning | Beginning | |
| English 2202H | | | Beginning | Beginning | Beginning | |
| English 2220 | | | Beginning | Beginning | Beginning | |
| English 2220H | | | Beginning | Beginning | Beginning | |
| English 2260 | | | Beginning | Beginning | Beginning | |
| English 2260H | | | Beginning | Beginning | Beginning | |
| English 2261 | | | Beginning | Beginning | Beginning | |
| English 2261H | | | Beginning | Beginning | Beginning | |
| English 2262 | | | Beginning | Beginning | Beginning | |
| English 2262H | | | Beginning | Beginning | Beginning | |
| English 2263 | | | Beginning | Beginning | Beginning | |
| English 2264 | | | Beginning | Beginning | Beginning | |
| English 2265 | | | Beginning | Beginning | Beginning | |
| English 2266 | | | Beginning | Beginning | Beginning | |
| English 2267 | | | Beginning | Beginning | Beginning | |
| English 2268 | | | Beginning | Beginning | Beginning | |
| English 2269 | | | Intermediate | Intermediate | Intermediate | |
| English 2270 | | | Intermediate | Intermediate | Intermediate | |
| English 2270H | | | Intermediate | Intermediate | Intermediate | |
| English 2275 | | | Beginning | Beginning | Beginning | |
| English 2276 | | | Beginning | Beginning | Beginning | |
| English 2277 | | | Beginning | Beginning | Beginning | |
| English 2280 | | | Beginning | Beginning | Beginning | |
| English 2280H | | | Beginning | Beginning | Beginning | |
| English 2281 | | | Beginning | Beginning | Beginning | |
| English 2282 | | | Beginning | Beginning | Beginning | |
| English 2290 | | | Beginning | Beginning | Beginning | |
| English 2291 | | | Beginning | Beginning | Beginning | |
| English 2296H | | | Beginning | Beginning | Beginning | |
| English 3271 | | | Intermediate | Intermediate | Intermediate | |
| English 3304 | | | Intermediate | Intermediate | Intermediate | |
| English 3305 | | | Intermediate | Intermediate | Intermediate | |
| English 3331 | | | Intermediate | Intermediate | Intermediate | |
| English 3361 | | | Intermediate | Intermediate | Intermediate | |
| English 3364 | | | Intermediate | Intermediate | Intermediate | |
| English 3372 | | | Intermediate | Intermediate | Intermediate | |
| English 3378 | | | Intermediate | Intermediate | Intermediate | |
| English 3398 | | | Intermediate | Intermediate | Intermediate | |
| English 3405 | | | Intermediate | Intermediate | Intermediate | |
| English 3465 | | | Intermediate | Intermediate | Intermediate | |
| English 3466 | | | Intermediate | Intermediate | Intermediate | |
| English 3467S | | | Intermediate | Intermediate | Intermediate | |
| English 3468 | | | Intermediate | Intermediate | Intermediate | |

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|-----------------|--|--|--------------|--------------|--------------|--|
| English 3597.03 | | | Intermediate | Intermediate | Intermediate | |
| English 3662 | | | Intermediate | Intermediate | Intermediate | |
| English 4400 | | | Advanced | Advanced | Advanced | |
| English 4513 | | | Advanced | Advanced | Advanced | |
| English 4514 | | | Advanced | Advanced | Advanced | |
| English 4515 | | | Advanced | Advanced | Advanced | |
| English 4520.01 | | | Advanced | Advanced | Advanced | |
| English 4520.02 | | | Advanced | Advanced | Advanced | |
| English 4521 | | | Advanced | Advanced | Advanced | |
| English 4522 | | | Advanced | Advanced | Advanced | |
| English 4523 | | | Advanced | Advanced | Advanced | |
| English 4531 | | | Advanced | Advanced | Advanced | |
| English 4533 | | | Advanced | Advanced | Advanced | |
| English 4535 | | | Advanced | Advanced | Advanced | |
| English 4540 | | | Advanced | Advanced | Advanced | |
| English 4542 | | | Advanced | Advanced | Advanced | |
| English 4543 | | | Advanced | Advanced | Advanced | |
| English 4547 | | | Advanced | Advanced | Advanced | |
| English 4549 | | | Advanced | Advanced | Advanced | |
| English 4550 | | | Advanced | Advanced | Advanced | |
| English 4551 | | | Advanced | Advanced | Advanced | |
| English 4552 | | | Advanced | Advanced | Advanced | |
| English 4553 | | | Advanced | Advanced | Advanced | |
| English 4554 | | | Advanced | Advanced | Advanced | |
| English 4555 | | | Advanced | Advanced | Advanced | |
| English 4559 | | | Advanced | Advanced | Advanced | |
| English 4560 | | | Advanced | Advanced | Advanced | |
| English 4561 | | | Advanced | Advanced | Advanced | |
| English 4562 | | | Advanced | Advanced | Advanced | |
| English 4563 | | | Advanced | Advanced | Advanced | |
| English 4564.01 | | | Advanced | Advanced | Advanced | |
| English 4564.02 | | | Advanced | Advanced | Advanced | |
| English 4564.03 | | | Advanced | Advanced | Advanced | |
| English 4564.04 | | | Advanced | Advanced | Advanced | |
| English 4565 | | | Advanced | Advanced | Advanced | |
| English 4566 | | | Advanced | Advanced | Advanced | |
| English 4567S | | | Advanced | Advanced | Advanced | |
| English 4568 | | | Advanced | Advanced | Advanced | |
| English 4569 | | | Advanced | Advanced | Advanced | |
| English 4570 | | | Advanced | Advanced | Advanced | |
| English 4571 | | | Advanced | Advanced | Advanced | |
| English 4572 | | | Advanced | Advanced | Advanced | |
| English 4573.01 | | | Advanced | Advanced | Advanced | |
| English 4573.02 | | | Advanced | Advanced | Advanced | |
| English 4574 | | | Advanced | Advanced | Advanced | |
| English 4575 | | | Advanced | Advanced | Advanced | |
| English 4576.01 | | | Advanced | Advanced | Advanced | |
| English 4576.02 | | | Advanced | Advanced | Advanced | |
| English 4576.03 | | | Advanced | Advanced | Advanced | |
| English 4577.01 | | | Advanced | Advanced | Advanced | |

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|------------------|--|--|----------|----------|----------|--|
| English 4577.02 | | | Advanced | Advanced | Advanced | |
| English 4577.03 | | | Advanced | Advanced | Advanced | |
| English 4578 | | | Advanced | Advanced | Advanced | |
| English 4578H | | | Advanced | Advanced | Advanced | |
| English 4579 | | | Advanced | Advanced | Advanced | |
| English 4580 | | | Advanced | Advanced | Advanced | |
| English 4581 | | | Advanced | Advanced | Advanced | |
| English 4582 | | | Advanced | Advanced | Advanced | |
| English 4583 | | | Advanced | Advanced | Advanced | |
| English 4584 | | | Advanced | Advanced | Advanced | |
| English 4585 | | | Advanced | Advanced | Advanced | |
| English 4586 | | | Advanced | Advanced | Advanced | |
| English 4587 | | | Advanced | Advanced | Advanced | |
| English 4588 | | | Advanced | Advanced | Advanced | |
| English 4589 | | | Advanced | Advanced | Advanced | |
| English 4590.01H | | | Advanced | Advanced | Advanced | |
| English 4590.02H | | | Advanced | Advanced | Advanced | |
| English 4590.03H | | | Advanced | Advanced | Advanced | |
| English 4590.04H | | | Advanced | Advanced | Advanced | |
| English 4590.05H | | | Advanced | Advanced | Advanced | |
| English 4590.06H | | | Advanced | Advanced | Advanced | |
| English 4590.07H | | | Advanced | Advanced | Advanced | |
| English 4590.08H | | | Advanced | Advanced | Advanced | |
| English 4590.09H | | | Advanced | Advanced | Advanced | |
| English 4591.01H | | | Advanced | Advanced | Advanced | |
| English 4591.02H | | | Advanced | Advanced | Advanced | |
| English 4592 | | | Advanced | Advanced | Advanced | |
| English 4595 | | | Advanced | Advanced | Advanced | |
| English 4597.01 | | | Advanced | Advanced | Advanced | |
| English 4597.02 | | | Advanced | Advanced | Advanced | |
| English 5664 | | | Advanced | Advanced | Advanced | |
| English 5710 | | | Advanced | Advanced | Advanced | |
| English 5721 | | | Advanced | Advanced | Advanced | |
| English 5722 | | | Advanced | Advanced | Advanced | |
| English 5723 | | | Advanced | Advanced | Advanced | |