

## **Term Information**

Effective Term Autumn 2018

## **General Information**

Course Bulletin Listing/Subject Area English  
Fiscal Unit/Academic Org English - D0537  
College/Academic Group Arts and Sciences  
Level/Career Undergraduate  
Course Number/Catalog 4420  
Course Title Capstone Course for Integrated Major in Mathematics and English  
Transcript Abbreviation IMME Capstone  
Course Description Students combine the Mathematics and English knowledge and skills they have acquired in the integrated major through a capstone experience.  
Semester Credit Hours/Units Fixed: 3

## **Offering Information**

Length Of Course 14 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? No  
Grading Basis Letter Grade  
Repeatable No  
Course Components Lecture  
Grade Roster Component Lecture  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus

## **Prerequisites and Exclusions**

Prerequisites/Corequisites IMME senior standing or permission of instructor.  
Exclusions  
Electronically Enforced Yes

## **Cross-Listings**

Cross-Listings Math 4420

## **Subject/CIP Code**

Subject/CIP Code 23.0101  
Subsidy Level Baccalaureate Course  
Intended Rank Senior

## Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

## Course Details

### Course goals or learning objectives/outcomes

- Students will have understanding of their own personal strengths and which jobs might require their particular set of skills.
- Students will learn how literary study can benefit from the skillset of a mathematician.
- Students will learn how a humanistic approach is valuable for both communicating, and understanding the context of, ideas in the mathematical sciences

### Content Topic List

- Rhetoric: How to Employ Linguistic Sleight of Hand
- Proof: From correct to convincing
- The Poem: How to Work with Pattern and Form
- Elementary geometry: Euclidean and beyond
- The Novel: How to Read Using Mathematical Models
- Population biology: the first mathematical models
- Biography: How to Order the Chaos of a Life
- History of probability

### Sought Concurrence

No

## Attachments

- IMME Curriculum Map.docx: Curricular Map  
*(Other Supporting Documentation. Owner: Lowry, Debra Susan)*
- Capstone cover letter.docx: Cover Letter  
*(Cover Letter. Owner: Lowry, Debra Susan)*
- Capstone Course for the Integrated Major in Mathematics and English, revised 4-24-17.docx: Sample Syllabus  
*(Syllabus. Owner: Lowry, Debra Susan)*

## Comments

- See 4-12-17 and 4-14-17 e-mails to B Husen and C Simmons. *(by Vankeerbergen, Bernadette Chantal on 04/14/2017 03:12 PM)*
- Our Director of Undergraduate Studies has indicated English texts for this capstone course for the IMME will be available at SBX. *(by Lowry, Debra Susan on 12/20/2016 01:48 PM)*
- a curricular map should be included if required for the degree and an indication of where the English texts may be purchased. *(by Heyssel, Garrett Robert on 12/18/2016 07:28 PM)*

**COURSE REQUEST**  
4420 - Status: PENDING

Last Updated: Heyssel,Garett Robert  
04/24/2017

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Lowry,Debra Susan	11/29/2016 10:44 AM	Submitted for Approval
Approved	Lowry,Debra Susan	11/29/2016 10:46 AM	Unit Approval
Revision Requested	Heyssel,Garett Robert	12/18/2016 07:28 PM	College Approval
Submitted	Lowry,Debra Susan	12/20/2016 01:48 PM	Submitted for Approval
Approved	Lowry,Debra Susan	12/29/2016 10:48 AM	Unit Approval
Approved	Heyssel,Garett Robert	01/11/2017 04:52 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	01/24/2017 01:38 PM	ASCCAO Approval
Submitted	Lowry,Debra Susan	04/04/2017 09:17 AM	Submitted for Approval
Approved	Lowry,Debra Susan	04/04/2017 09:25 AM	Unit Approval
Approved	Heyssel,Garett Robert	04/04/2017 10:52 AM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	04/14/2017 03:12 PM	ASCCAO Approval
Submitted	Heyssel,Garett Robert	04/14/2017 08:48 PM	Submitted for Approval
Approved	Lowry,Debra Susan	04/24/2017 01:07 PM	Unit Approval
Approved	Heyssel,Garett Robert	04/24/2017 01:35 PM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	04/24/2017 01:35 PM	ASCCAO Approval



April 4, 2017

ASC Curriculum Committee—Arts and Humanities

Dear Committee:

Attached is a proposal for a new cross-listed course, English 4420 and Mathematics 4420. As the proposal states, the goal of the course is to provide a capstone experience for the proposed new integrated major in Math and English (abbreviated in the course to IMME).

We originally submitted the complete major proposal to the NMS panel in February 2016, but were asked to make some revisions, including the full development of this Capstone course. After our resubmission in December 2016, the panel asked us to respond to additional questions, including providing sample projects for the course, which explains why this proposal includes examples of assignments.

We continue to believe that the Integrated Major will be an excellent option for a select group of Ohio State students and that it will contribute to their long-term success in their future careers. If you have further questions, please let us know.

Sincerely yours,

William Husen  
Director of Undergraduate Studies  
Department of Mathematics

Clare A. Simmons  
Director of Undergraduate Studies  
Department of English  
[simmons.9@osu.edu](mailto:simmons.9@osu.edu)



For your reference:

Previously, Panel had requested description of how advising will truly integrate both Math and English components of the major (i.e., to prevent discrete/silo advising). Such an explanation is not provided in the document.

- Cover letter and p. 2, Replace “Colleges of Arts and Sciences” with “College of Arts and Sciences.”
- P. 7: Eddie Pauline has not been the Director of the Buckeye Leadership Fellows Program since February 2016. He is now the Director of Business Development in the Office of Economic and Corporate Engagement at Ohio State.
- Pages 7 and 10: remove “degree” and replace with “major.”
- Here and there in the proposal, there are still references to IDEM. Pages 10, 11, 51: change IDEM to IMME.
- P.11: What is the reference to 12-15 upper-level credits for electives?
- Appendix 1: Sample 4-year plans:
  - P. 16: Theoretical Math concentration: CSE 2111 is not included in the plan, though this course is listed on the advising sheet on p. 27.
  - Issue of courses that are presented as fulfilling a GE requirement on all sample 4-year plans but are presented as core courses on the advising sheets (in Appendix 2). This is the case for Math 2153 (marked as GE Open Option on plans but also in core courses for major) and English 2269 (marked as GE Visual and Performing Arts on plans but also in core courses for major). Those GE categories and courses in the major cannot overlap.
  - All advising sheets (Appendix 2) indicate students need to take one English course at the 2000-level or higher and three English courses at the 3000-level or higher. However, all sample 4-year plans mention one “English3000-level+” course and three “English 4000-level+” course. Which information is correct?
  - Why does the GE Literature course need to be out of English and at the 2000-level or higher? The proposal does not mention/explain this anywhere else.
  - Some electives in the senior year are marked as “upper division.” Remove “upper division” because that is not needed. As such, there are already enough upper division courses.
- Appendix 2: Advising sheets:
  - 1000-level courses cannot be included in a major. However, Math 1295 is included as a core course in all 4 concentrations.
- Math 4420:
  - P. 7: For capstone project:
    - Provide examples of projects.
    - How would a student do a capstone project on one of the topics later in the semester (since students will be given a list of possible projects at the beginning of each section of the course)?
  - P. 8: 3-credit hour course should meet 165 minutes per week (not 110 minutes).
  - P. 9: Change reference IDEM to IMME.

# **Capstone Course for the Integrated Major in Mathematics and English**

## **(4420)**

Profs. Daniel J. Thompson (Math)

and Zoë Brigley Thompson (English)

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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 junior or 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); **a panel** will see the students give a final presentation. **Although the panel will provide feedback on the presentation, all grades will be assigned by the class instructor.**

## **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.

#### Examples of projects:

Projects should incorporate mathematical and humanities components. This can be achieved in one of two ways:

(a) the critical analysis and the mathematics can be blended into one project. History of Mathematics projects would be particularly suited to this. For example, a project on the history of gambling in 17th century France, including analysis of a relevant text, with mathematical content given by exploring some of the mathematical contributions of Pascal and Fermat.

(b) the critical analysis and the mathematics components can be handled separately, but with some coherence in the choice of topics: e.g. a project on Topic 3. could incorporate a first part which uses Moretti's theories of mathematical models to analyze a text, and a second part which looks at a simple mathematical model in applied mathematics.

Under these criteria, there is a lot of latitude to choose appropriate projects.

In Topic 1 (Rhetoric), many projects of type (b) are possible through analysis of rhetoric in a suitable text, and exposition of a short proof from a classic text in mathematics.

In Topic 2 (Rules and structure), a project of type (b) could be suitable with a first part analyzing form in poetry, and with a second part analyzing some axioms (say, of the natural numbers, or Euclidean geometry, etc). This topic also lends itself to an integrated historical project of type (a). For example, there is a fascinating historical back story to the discovery of projective geometry by Poncelet. This would be suitable for a history of mathematics project explaining both the mathematical ideas, and critical analysis involving literature from the time and societal context.

In Topic 3 (Mathematical Models), we already mentioned an example project: a first part which uses Moretti's theories of mathematical models to analyze a text, and a second part which looks at a simple mathematical model in applied mathematics.

In Topic 4 (Randomness / Biography): the choice of historical projects is limitless. There are many works on biography of fascinating mathematicians. An investigation of Turing's biography combined with an explanation of some of his mathematics would be a great project. A project based on the new book "Hidden Figures" by Margot Lee Shetterly concerning the contribution of black female mathematicians to NASA in the 1940's would also be a fantastic and timely project.

Timeline for projects:

We will discuss possible projects at the beginning of the course. Students who choose topics from later in the course will be able to plan with this in mind. The projects are really for independent study, particularly the biography oriented projects from the end of the course, so we see no problem with the projects being initiated early in the course in discussion with the class instructors, with material being reinforced as we cover these topics in class.

## Schedule of Topics:

We work on the assumption that there are fourteen 165 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:** Rhetoric III

**Week 5:** Rules and structure I

**Week 6:** Rules and structure II

**Week 7:** Midterm

**Week 8:** Mathematical models I

**Week 9:** Mathematical models II

**Week 10:** Randomness I

**Week 11:** Randomness II

**Week 12:** Randomness III

**Week 13:** Presentations

**Week 14:** 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 165 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 **IMME**.

### **Disability Statement:**

Students with disabilities that have been certified by the Office of Student Life, 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 098 Baker Hall

113 W. 12th Ave Columbus, OH 43210; 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 (Faculty Rule 3335-5- 487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>





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

<b>Prerequisites</b>	<b>Goal (1)</b>	<b>Goal (2)</b>	<b>Goal (3)</b>	<b>Goal (4)</b>	<b>Goal (5)</b>	<b>Goal (6)</b>
Econ 2001	Beginning	Beginning				
Econ 2002	Beginning	Beginning				
English 1110					Beginning	
English 2367					Intermediate	
Math 1151	Beginning	Beginning				
Math 1152	Beginning	Beginning				
<b>Core Courses in Concentration</b>						
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				
<b>Math/English Capstone Course</b>						
Math/English 4420		Advanced				Advanced
<b>Diversity in English Studies Courses (Choose one)</b>						
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		
<b>Methods Course (Choose one)</b>						
English 2270			Intermediate			
English 3379			Intermediate			
English 3398			Intermediate			

<b>English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above)</b>						
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**

<b>Prerequisites</b>	<b>Goal (1)</b>	<b>Goal (2)</b>	<b>Goal (3)</b>	<b>Goal (4)</b>	<b>Goal (5)</b>	<b>Goal (6)</b>
Econ 2001	Beginning	Beginning				
Econ 2002	Beginning	Beginning				
English 1110					Beginning	
English 2367					Intermediate	
Math 1151	Beginning	Beginning				
Math 1152	Beginning	Beginning				
<b>Core Courses in Concentration</b>						
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				
<b>Math/English Capstone Course</b>						
Math/English 4420		Advanced				Advanced
<b>Diversity in English Studies Courses (Choose one)</b>						
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		
<b>Methods Course (Choose one)</b>						
English 2270			Intermediate			
English 3379			Intermediate			
English 3398			Intermediate			

<b>English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above)</b>						
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 – Financial/Actuarial Concentration**

<b>Prerequisites</b>	<b>Goal (1)</b>	<b>Goal (2)</b>	<b>Goal (3)</b>	<b>Goal (4)</b>	<b>Goal (5)</b>	<b>Goal (6)</b>
Econ 2001	Beginning	Beginning				
Econ 2002	Beginning	Beginning				
English 1110					Beginning	
English 2367					Intermediate	
Math 1151	Beginning	Beginning				
Math 1152	Beginning	Beginning				
<b>Core Courses in Concentration</b>						
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				
<b>Math/English Capstone Course</b>						
Math/English 4420		Advanced				Advanced
<b>Diversity in English Studies Courses (Choose one)</b>						
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		
<b>Methods Course (Choose one)</b>						
English 2270			Intermediate			
English 3379			Intermediate			
English 3398			Intermediate			

<b>English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above)</b>						
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 – Theoretical Math Concentration**

<b>Prerequisites</b>	<b>Goal (1)</b>	<b>Goal (2)</b>	<b>Goal (3)</b>	<b>Goal (4)</b>	<b>Goal (5)</b>	<b>Goal (6)</b>
Econ 2001	Beginning	Beginning				
Econ 2002	Beginning	Beginning				
English 1110					Beginning	
English 2367					Intermediate	
Math 1151	Beginning	Beginning				
Math 1152	Beginning	Beginning				
<b>Core Courses in Concentration</b>						
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				
<b>Math/English Capstone Course</b>						
Math/English 4420		Advanced				Advanced
<b>Diversity in English Studies Courses (Choose one)</b>						
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		
<b>Methods Course (Choose one)</b>						
English 2270			Intermediate			
English 3379			Intermediate			

English 3398			Intermediate			
<b>English Electives (Choose one at the 2000-level or above and choose three at the 3000-level or above)</b>						
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	