

# MATH 3003, Transition to Advanced mathematics

## Spring 2017

**Section:** 01W, Discipline Specific Writing (DSW) course      **Hours Credit:** 3 hours

**Room and Hours:** Boyd 302, TR, 12:30 pm – 1:45 pm

**Prerequisite:** MATH 2644 or MATH 2853 with C or better

**Instructor:** Dr. Kwang Shin

**Office Hours:** M (10:45 am –12:30 pm) and TR (1:45 pm – 3:00 pm) or by appointment.

**Office:** 311 Boyd      **Phone:** 678-839-4138

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**Course Webpage:** <http://www.westga.edu/~kshin/3003/>

**Course Description:** This course introduces elements of mathematical proof, focusing on three main themes: the meaning of mathematical statements, the roles of examples in determining the validity of mathematical statements, and the various forms and methods of mathematical proofs, including direct proof, proof by exhaustion, indirect proof (by contradiction, or by contrapositive), mathematical induction, disproof by counterexample.

**Textbook:** Douglas Smith, Maurice Eggen, and Richard St. Andre, *A Transition to Advanced Mathematics*, 8<sup>th</sup> Edition, Cengage Learning, Boston, 2014.

**Learning Outcomes:** The student will be able:

- To have an understanding of symbolic logic and quantifiers, and be able to translate sentences from English statements into logical expressions and back.
- To be familiar with methods of proofs, including direct proof, proof by induction, contradiction, and contrapositive,
- To know the basic concepts of naive set theory,
- To know the basic properties of functions and relations, including surjectivity, injectivity, bijectivity,
- To know the definition of cardinality, and be able to determine if a set is finite, countably infinite, or uncountably infinite,
- To be able to effectively communicate written mathematics.

**Hour Exams:** Exam 1 (Tue, Feb 7), Exam 2 (Tue, March 14), Exam 3 (Thu, April 20).

**Final Exam:** Thursday, May 4, 11:00 am -1:00 pm. The final exam will be cumulative.

**DSW Homework:** The homework includes the writing of proofs as part of discipline specific writing. Homework will be assigned almost every day. Homework will be collected at the beginning of the next class for grade. Partial credit will be considered for incomplete work. However, **late submission will receive zero point**. The total homework score will be converted to a 90 point scale at the end of semester.

**Quizzes:** We will have quizzes before each hour exam, 20 points each.

<b>Grade Scale:</b>	3 hour exams	300 points (100 points each)
	Homework	90 points
	Quizzes	60 points
	Final	200 points
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	Total	650 points

A: 585 - 650, B: 520 - 584, C: 455 - 519, D: 357 - 454, F: 0 – 356

**February 2** is the last day to withdraw from a class with a grade of W.

**Make-up:** In general, make-up exams will not be given after the scheduled exam date. There will be no make-up final except when a conflict with other finals occurs. If a conflict occurs to you, please inform the instructor at least two weeks in advance. Make-up hour exams will be granted for official university activities if the student notifies the instructor at least a week in advance and for well-documented illness.

**Attendance and Pop-up Quizzes:** Attendance is required and expected. Students are responsible for all material covered in class and all announcements made. An undetermined number of pop-up quizzes may be given for extra points. Such a quiz will consist of one problem, discussed during the same class.

*Starting from the 4<sup>th</sup> unjustified absence, each absence leads to a half percent deduction from the final grade. It will count as absent if you are not present when the attendance is checked.*

**Classroom Behavior:** You are expected not to disturb your classmate's learning. **No headphones or electronic devices that are not approved by the instructor are allowed in class.**

Also, please carefully review the following information at <http://tinyurl.com/UWGSyllabusPolicies> or [http://www.westga.edu/assetsDept/vpaa/Common\\_Language\\_for\\_Course\\_Syllabi.pdf](http://www.westga.edu/assetsDept/vpaa/Common_Language_for_Course_Syllabi.pdf). It contains important material pertaining to your rights and responsibilities in this class. Because these statements are updated as federal, state, university, and accreditation standards change, you should review the information each semester.