CCS Mathematics Degree Checklist

Note: There is flexibility on some of the points below as well as some obscure quirks so this checklist should be completed in consultation with your advisor. Additional comments are on the second page.

- \Box 180 units of classes, an overall GPA of at least 2.0, and six quarters within CCS.
- \Box UC Writing requirement.
- \Box American History and Institutions Requirement¹.
- General Education Requirements (See Comment 1)

Humanities & Fine Arts or Social Sciences:		
Ethnicity Requirement:		
CCS Math Writing Requirement:		
Three Additional GEs:		

• Two courses in Computer Science or Physics²

• CCS Mathematics Core Requirements. (See Comments 2 & 3)

- \Box Intro to Higher Mathematics (CS128) \Box Math 111A
- \Box Problem Solving I (CS101A) \Box Math 111B
- \Box Problem Solving II (CS101B)
- \Box CS120F
- \Box CS120F
- \Box CS120F

- \Box Math 118A \Box Math 118B
- \Box Math 118C

 \Box Math 111C

- \Box Advanced Linear Algebra I (CS108A)
- \Box Complex Analysis I (CS122A) \Box Advanced Linear Algebra II (CS108B) \Box Complex Analysis II (CS122B)
- \Box Intro to Real Analysis (CS117)
- \Box Probability and Combinatorics (CS121)
- Nine additional courses³ in Mathematics (See Comments 2 & 3)

CS120	
CS120	

 \Box Research Experience Portfolio

¹This can be included as one of your CCS GE requirements if it is completed at UCSB as a 3+ unit letter-graded class.

²At least one must be a class in which you learn a new programming language. Suggestions are CMPSC 8/9/16, PSTAT 10 and CCS Computing 20. The second class can also be ENG3.

 $^{^{3}}$ So 27 in total.

Comments

- 1. A GE here means a 3+ unit class taken for a letter grade in a department other than Math, PSTAT, Physics or Computer Science. At least five of these must come from a department in the Division of Humanities & Fine Arts or Division of Social Sciences. The CCS Math Writing Requirement is Writing 2 or an upper-division Writing class. At most two classes from the same department can be counted here. Only two foreign languages may count here. In the Department of Linguistics only LING N with $N \geq 15$ can count.
- 2. CCS classes only count toward the degree if you receive at least n-1 units in an n unit class. All non-CCS classes must be taken for a letter grade and be passed with a C or better. Online classes may not be used here.
- 3. The nine additional courses may come from: CCS or upper-division Mathematics Department classes; Mathematics Department graduate classes (except Math260's); or the Probability and Statistics classes listed below. Additionally:
 - Two must be of the form CS120XY with $X \neq F$. These can count as in one of the areas below depending on content.
 - Students must take at least one class from three of the following areas:
 - (a) Number Theory and Combinatorics: Math115AB, Math116, Math137AB, or equivalent classes taken at other universities, grad classes on Number Theory or Combinatorics.
 - (b) Geometry and Topology: Math113, Math132AB, Math145, Math147AB, or equivalent classes taken at other universities, grad classes on geometry or topology,
 - (c) Differential Equations and Applied Mathematics: Math104ABC, Math108C, Math119AB, Math124AB, Math 132AB, or equivalent classes taken at other universities, grad classes on Differential Equations or Applied Math topics
 - (d) Probability and Statistics: PSTAT120BC, PSTAT160AB, PSTAT126, PSTAT131, or any data science related graduate PSTAT class.
 - Math199 (Independent Studies) can count at most twice as a major requirement, and each time with the approval of your advisor. The student should receive at least 3 units in this classes for them to count.
 - Math182 may count as an elective with approval of the advisor.
 - Mathematics classes whose description states that they are aimed at future teachers or transfer students cannot count as an elective.
 - Graduate classes (except the Math260 series) in the mathematics department may be taken as an elective only after sufficient undergraduate preparation. Students who aim to do this should speak to their advisor as soon as possible.
- 4. The Research Portfolio consists of an essay explaining the different research experiences the student participated in, what they learned

through those experiences, and how they have influenced their career path. This essay should be complemented with evidence of the research experiences: papers, research reports, posters, slides of talks, videos, etc. Research experiences in the context of industry are acceptable.

The research portfolio should be approved first by the academic advisor of the student and then by the CCS steering math committee. These materials need to be submitted for revision by this committee by the eighth week of the quarter in which the student graduates. If the portfolio is not approved, the student will have to make appropriate changes or graduate with a BA. Thus, it is recommended that the students submit their research portfolio for approval much earlier than the eighth week of the last quarter at UCSB.

5. Exceptions to the requirements above can be requested by letter to the CCS math steering committee.