

Math, M-242 *Methods of Proof*

Text: *Proof: Introduction to Higher Mathematics*

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The course emphasizes

true or false

proofs

counterexamples

logic

justifications

true vs. justified

precision in statements

connections between facts

a new attitude

an attitude toward mathematics that emphasizes truth, reasoning, and justification,  
as opposed to algorithms for calculation. There is very little calculation in this course.

Important things you will eventually understand

conditional sentences

generalizations

conjectures

counterexamples

simpler counterexamples are better

existence statements

quantifiers (for all, there exists)

negation

logical forms

basic logical forms, for example, the contrapositive

the logical equivalence called “a Hypothesis in the Conclusion”

concept definitions vs. concept images

definitions in “sentence-form”

prior results

proofs have two components, form and prior results