

Introduction to Mathematical Proof - Course Study Sheet

Course: Introduction to Mathematical Proof Cluster: Mathematics and Quantitative Methods

Teaches definitions, logic, direct and indirect proof, induction, and construction of rigorous arguments.

Five-module course map

Module	Active evidence to produce
1. definitions and quantifiers	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
2. direct proof	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
3. contrapositive and contradiction	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
4. mathematical induction	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
5. counterexamples	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.

Reliable learning method

unpack the statement, identify quantifiers, test examples, choose a proof structure, justify each implication, and edit for completeness

Representative application

Prove a divisibility statement and explain why checking many integers is useful exploration but not proof.

Weekly study cycle

1. Preview the objective and write two questions. 2. Attend or engage and capture decisions rather than every sentence. 3. Reconstruct the main idea within 24 hours. 4. Complete independent practice. 5. Analyze the first unsupported move on each error. 6. Use feedback. 7. Schedule a delayed mixed recheck.

Self-check before moving on

Can you explain the idea without notes, complete a fresh task, detect a near-miss, verify the result, and state a limitation? Watch especially for: starting algebra before stating assumptions or using the desired conclusion as an intermediate fact.

What to save

a polished proof with definitions, logical structure, edge cases, and revision notes

Use and rights

Copyright 2026 Exams.fit. This PDF is original learning support created for Exams.fit. The Exams.fit administrator may host and display it on Exams.fit. Public download is disabled by default. Do not resell, remove attribution, or present it as an official college document. Course requirements vary; the current syllabus and instructor directions control.

Open-learning verification: <https://openstax.org/subjects/math> | Reviewed August 2, 2026