

Discrete Mathematics - Course Study Sheet

Course: Discrete Mathematics Cluster: Mathematics and Quantitative Methods

Develops logic, proof, sets, combinatorics, graphs, relations, and recurrence for computing and mathematics.

Five-module course map

Module	Active evidence to produce
1. propositional logic	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
2. proof techniques	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
3. sets and relations	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
4. counting and probability	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.
5. graphs and recurrences	Explain the central idea, complete an application, diagnose one plausible error, and connect it to the next module.

Reliable learning method

translate statements precisely, test small cases, choose a proof or counting strategy, justify each step, and check edge cases

Representative application

Prove a property of a graph or recurrence and contrast the proof with several confirming examples.

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: believing examples prove a universal claim or counting outcomes twice because categories overlap.

What to save

a formal argument with definitions, cases, edge checks, and a clear conclusion

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