

## PRESENTATION TOPICS:

1. Urysohn Metrization Theorem (section 34)\*\*AM
2. Imbedding of Manifolds (Section 36)\*\*EA
3. Nagata-Smirnov Metrization Theorem (Section 40)
4. Paracompactness (Section 41)\*\*JN
5. Ascoli's Theorem (Section 47)
6. A Nowhere Differentiable Function (Section 49)\*\*LW
7. The Fundamental Theorem of Algebra (Section 56)\*\*RB
8. The Jordan Separation Theorem (Section 61)\*\*MS
9. Invariance of Domain (Section 62)
10. The Jordan Curve Theorem (Section 63)\*\*PD
11. Imbedding graphs in the plane (Section 64)\*DP
12. The winding number of a simple closed curve (Section 65)\*SS
13. The Cauchy Integral Formula (Section 66)\*SD
14. Homology of Surfaces (Section 75)\*EM
15. Equivalence of covering spaces (Section 79)
16. The Universal Covering Space (Section 80)
17. Covering Transformations (Section 81)
18. The Fundamental Group of Graph (Section 84)\*IW

\* means that the topic is taken

\*\*presented

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Homework 1 (Quiz on January 26th)

Sec 35, Exercises: 1, 4, 5, 6.

Sec 38, Exercises: 2, 3, 4, 6.

Homework 2 (Quiz on February 23rd)

Sec 51, Exercises: 1, 2, 3.

Sec 52, Exercises: 3, 4.

Sec 53, Exercises: 3, 4, 5.

Sec 54, Exercises: 3, 5, 6.

Homework 3 (Quiz on April 13th)

Sec 55, Exercises: 1, 2, 3.

Sec 57, Exercises: 2, 4.

Sec 58, Exercises: 1, 3, 5, 6, 9.

Sec 59, Exercises: 3.

Sec 60, Exercises: 1, 2.

Sec 71, Exercises: 2, 3.

EXTRA CREDIT:

Credit for \*-problems will be given to first 3 people for each problem who

bring a correct solution to my office and present it on the blackboard. Then the problem will be removed from the list.

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Problem 1\*[\# of claims left - 3](3pts)

Is the Tychonov cube  $[0, 1]^{[0, 1]}$  separable?

Problem 2\*[\# of claims left - 3](3pts)

Prove that if the unit of a topological group  $G$  is closed then  $G$  is a regular topological space.

Problem 3\*[\# of claims left - 3](2pts)

Prove that the fundamental group of a topological group is abelian.

Problem 4\*[\# of claims left - 3](2pts)

Problem 5\*[\# of claims left - 3](4pts)

Problem 6\*[\# of claims left - 3](3pts)