MATH 663—FALL 2023—PRESENTATION TOPICS

1. Homology of graphs (Massey, p.43) --*Cannon*
2. Cell structure of Grassmannians (Milnor-Stasheff, p.73) –*Sam*
3. Cell structure and homology of SO(n) (Hatcher, p. 292)-*George*
4. Discrete Morse Theory (book)--*Sagnik*
5. Smooth manifolds are triangulable (Prasolov I, p. 210)—*Ivy*
6. Simplicial Approximations (Prasolov I, p. 103)--*Amer*
7. Homology of pseudomanifolds (Prasolov I, p. 108 and handout)—*Tariq*
8. Lefschetz fixed-point theorem (Prasolov II, p. 56)--*Andrew*
9. Hopf's theorem on maps to spheres (Bredon, p. 297)--*Dalen*
10. Hopf invariant (Vick, p.135--138)--*Chris*
11. DeRham's theorem (Bredon, p. 286)--*Fotis*
12. Hodge theory on graphs (paper)—*Jared*

REFERENCES

W. S. Massey, Singular Homology Theory (Springer)
A. Hatcher, Algebraic topology
J. Milnor, J,D, Stasheff, Characteristic Classes (Princeton UP)
N. A. Scoville, Discrete Morse Theory (AMS)
V.V Prasolov, Elements of Combinatorial and Differential Topology (AMS)
V.V.Prasolov, Elements of Homology Theory (AMS)
G. E. Bredon, Geometry and Topology (AMS)

ASSIGNMENT

1. As soon as you've had a chance to look at the topic in the source given, please make an appointment to discuss the presentation with me, and to ask questions.
2. The written summary of the topic should correspond to the notes you'd use for an oral presentation. (3-5 LateX pages.) It shouldn't be too close to the original source, but rather refer to the material in *Vick* (the main text) seen in lecture, if possible. (They are meant to be posted on the course page.)
3. The presentations should happen in the order given*, as soon as the prerequisites have been seen in class, starting in late October (45 min each.) Even if there is no time to schedule a class presentation, the written summary should be turned in by the end of the term. (*some flexibility here: let me know when you're ready, and there may be inversions.)