**Tentative Schedule**

**MATH-517-30:** Social Network Analysis

**Summer 2022**

# Tentative Course Outline:

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| **Class** | **Date** | **Barabasi textbook** | **Homework:**  **Newman textbook** |
| **1** | 06/06/22 | Chapter 1 Introduction to Network Analysis  Hands-on (NetworkX) |  |
| **2** | 06/08/22 | Chapter 2 Graph Theory  Hands-on (NetworkX) |  |
| **3** | 06/13/22 | Chapter 3 Random Networks  Hands-on (gephi, graph representation, binning, NetworkX) | Homework #1(Chapter 6) |
| **4** | 06/15/22 | Chapter 4 The Scale-Free property  Hands-on (NetworkX) |  |
| **5** | 06/20/22 | Chapter 5 The Barabasi-Albert Model  Hands-on (NetworkX) | Homework #2(Chapter 7) |
| **6** | 06/22/22 | Chapter 6 Evolving Networks  Hands-on (NetworkX) |  |
| **7** | 06/27/22 | Chapter 7 Degree Correlation  Preliminary Project Presentation  Hands-on (NetworkX) | Preliminary Project Presentation |
| **8** | 06/29/22 | **Midterm Exam at Home** |  |
|  | 07/04/22 | **No classes (Independence Day)** |  |
| **9** | 07/06/22 | Chapter 8 Network Robustness  Hands-on (NetworkX) | Homework #3 (Chapter 10) |
| **10** | 07/11/22 | Chapter 9 Communities  Hands-on (NetworkX) |  |
| **11** | 07/13/22 | Hands-on (NetworkX) | Homework #4 (Chapter 8) |
| **12** | 07/18/22 | Hands-on (NetworkX) | Homework #5 (Chapter 11) |
| **13** | 07/20/22 | Chapter 10 Spreading Phenomena  Hands-on (NetworkX) |  |
| **14** | 07/25/22 | **Large-Scale Analysis, Functional Granulation**  Hands-on (NetworkX) | Homework #6 (Chapter 12) |
| **15** | 07/27/22 | **Final Research Project** | Final Project Presentation |

**Textbook**

There will be required textbooks for this course:

* Barabasi, Albert-Laszlo. Network science. Cambridge University Press, 2016.

[Online materials available here](http://networksciencebook.com/)

* Newman, Mark. Networks: an introduction. Oxford University Press, 2018.

ISBN-10: 0199206651, ISBN-13: 978-0199206650.

* Complex Network Analysis in Python, The Pragmatic Bookshelf, 2018, ISBN-13:978-1-68050-269-5. Online Book available via GTU library
* Edward L. Platt. Network Science with Python and NetworkX Quick Start Guide. Pact Publishing Ltd. ISBN 978-1-78995-531-6. Online Book available via GTU library

**Recommended Textbooks and References**

The following textbooks are recommended (optional) texts for further

* Stephen P. Borgatti, Martin G. Everett. Analyzing Social Networks 2nd Edition, Sage Publications Ltd, ISBN 978-1526404091, ISBN: 526404107