

Math 9 Sample Syllabus
(based on 29 lectures)

| Lecture | Topic |
|----------------|---|
| 1. | Intro to Matlab, variables, vectors, arrays |
| 2. | Vector operations |
| 3. | Plotting |
| 4. | M-files: scripts and functions |
| 5. | Programming fundamentals: if/for/while, true/false in Matlab |
| 6. | Debugging |
| 7. | Random numbers in Matlab, random walks |
| 8. | Probability estimates |
| 9. | Numerical precision in Matlab, the bisection method |
| 10. | Big O notation, cpu time |
| 11. | Catch-up/extra topics |
| 12. | Review/Matlab matching game |
| 13. | Midterm 1 |
| 14. | Intro to Mathematica, lists, symbolic computation |
| 15. | Plotting in Mathematica |
| 16. | Probability estimates using Mathematica, Histogram and ListPlot |
| 17. | Immediate vs delayed assignment |
| 18. | Functions and pure functions, NestList |
| 19. | NestWhileList |
| 20. | Patterns- piecewise functions, Count, Cases, ReplaceAll, Position |
| 21. | Investment game |
| 22. | Newton's method |
| 23. | Graphics |
| 24. | Manipulate |
| 25. | Miscellaneous/Optional/Catch-up |
| 26. | Miscellaneous/Optional/Catch-up |
| 27. | Miscellaneous/Optional/Catch-up |
| 28. | Miscellaneous/Optional/Catch-up |
| 29. | Miscellaneous/Optional/Catch-up |

These are suggestions/possibilities based off of what was covered in Math 9 in 2015-16. Because Math 9 is a new course, it is possible for your course to be set up very differently from the course described here.