You must submit a project proposal and outline for your final paper. The proposal should include one or two paragraphs describing your chosen topic, your reasons for selecting this topic, and your goals for the scope of your paper. In order to select a topic and come up with an outline for the paper, you will need to have consulted some reference material. Include the bibliographic information for one or two of these references. The outline of your paper should contain the section headings of the sections of your paper as well as the theorem statement or name of any major theorem you plan to discuss. The project proposal and outline must be typed in LaTeX.

Below is a list of suggested topics. Many of these are broad subjects that encompass considerably more material than is suitable for the final project. Once you start reading more about your chosen topic, narrow it down to a manageable portion. You may also choose a different topic, subject to instructor approval. For details and some references, see the website at

math.mit.edu/~minnes/18.504/project.html.

- Concrete Kolmogorov Complexity

- Information theory

- Entropy and reversibility of computation

- Learning theory and minimum description length

- Lower bounds on worst-case complexity

- Average-case complexity and Kolmogorov complexity

- Degrees of randomness and relative randomness

- Effective Hausdorff dimension