# CE 374K Hydrology Review for Final Exam Spring 2011

The material is classified according to ***Bloom’s Taxonomy of Educational Objectives***:

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| **Level** | **Title** | **Meaning** |
| 1 | Knowledge | Definitions, facts, formulas |
| 2 | **Comprehension** | Explanation of definitions, formulas, problem solving procedures |
| 3 | **Application** | Know how to use a formula or procedure to solve simple problems |
| 4 | **Analysis** | Break down a complex problem and solve by steps |
| 5 | **Synthesis** | Derivation of basic formulas, design of new systems |
| 6 | **Evaluation** | Advantages and limitations of alternative approaches |

**Lectures**

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| --- | --- | --- |
| **Lecture** | **Topic** | **Level** |
| 1 | Low Impact Design (Dr Barrett) | 2 |
| 2 | Design storm rainfall | 4 |
| 3 | Design Flows | 3 |
| 4 | GIS in Hydrology | 2 |

Readings: Chow, Maidment, Mays

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| Sec 12.1 – 12.3 | Flood frequency analysis | 5 |
| Sec 13.1 – 13.2 | Design level | 2 |
| Sec 14.1 – 14.4 | Design precipitation depth, hyetographs, idf curves | 4 |
| Sec 15.1-15.5 | Rational method, flood hydrology and hydraulic design | 3 |

I expect you to have the following computational skills from the last sequence of lectures:

1. Estimate the return period of a fixed flood discharge using the “analysis of recurrence intervals” as in the first part of the HEC-SSP exercise
2. Calculate the risk of a T year event occurring within the next N years, as in Example 12.1.1
3. Calculate flood discharges by the frequency factor method as in Example 12.3.3. You may assume the mean, standard deviation and coefficient of skewness of the logarithms of the flows will be given to you.
4. Determine the design precipitation from an intensity-duration-frequency curve, as in Example 14.2.1
5. Determine the design precipitation from an intensity formula, as in Example 14.2.4
6. Determine the design hyetograph using the alternating block method as in Example 14.4.2
7. Apply the rational method to determine the design discharge for a single drainage area as in Example 15.1.1

The final exam will cover the material that we’ve had since the second quiz in a similar manner to the earlier quizzes, and then there will be some comprehensive questions that review the whole curriculum for the semester.

You may bring three review sheets with you with anything written on them that you like. **The exam is scheduled for Thursday, May 12, 2:00-5:00 PM in ECJ 6.406**