http://www.cs.unh.edu/~ruml/cs758
Summary
### What We’ve Covered

<table>
<thead>
<tr>
<th>Week</th>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
<th>Book</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Aug 28</td>
<td>big-O, sorting</td>
<td>2, 3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Aug 30</td>
<td>more sorting</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Sep 4</td>
<td>heaps</td>
<td>7, 6</td>
<td>asst 1 (radix sort)</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>Sep 18</td>
<td>red-black deletion</td>
<td>13</td>
<td>asst 3 (babbler)</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>Sep 25</td>
<td>LPs</td>
<td>29</td>
<td>asst 5 (spelling correction)</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>Oct 2</td>
<td>knapsack</td>
<td>15</td>
<td>asst 6 (sequence alignment)</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>Oct 4</td>
<td>parsing</td>
<td></td>
<td>asst 7 (parsing)</td>
</tr>
<tr>
<td>8</td>
<td>13</td>
<td>Oct 11</td>
<td>greedy</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>14</td>
<td>Oct 18</td>
<td>graph traversal</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>Oct 23</td>
<td>union-find, components</td>
<td>21</td>
<td>asst 8 (algorithm design)</td>
</tr>
<tr>
<td>11</td>
<td>16</td>
<td>Oct 25</td>
<td>spanning trees</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>17</td>
<td>Oct 30</td>
<td>shortest paths</td>
<td>24</td>
<td>asst 8 (MST halftoning)</td>
</tr>
<tr>
<td>13</td>
<td>18</td>
<td>Nov 1</td>
<td>all pairs paths</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>19</td>
<td>Nov 6</td>
<td>network flow</td>
<td>26</td>
<td>asst 10 (route planning)</td>
</tr>
<tr>
<td>15</td>
<td>20</td>
<td>Nov 8</td>
<td>matching</td>
<td>26, 3</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>21</td>
<td>Nov 13</td>
<td>NP-completeness</td>
<td>34</td>
<td>asst 11 (flow)</td>
</tr>
<tr>
<td>17</td>
<td>22</td>
<td>Nov 15</td>
<td>satisfiability</td>
<td></td>
<td>asst 12 (NP proof)</td>
</tr>
<tr>
<td>18</td>
<td>23</td>
<td>Nov 20</td>
<td>clique</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>24</td>
<td>Nov 27</td>
<td>undecidability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>25</td>
<td>Nov 29</td>
<td>approximation</td>
<td>35</td>
<td>asst 13 (NP proof)</td>
</tr>
<tr>
<td>21</td>
<td>26</td>
<td>Dec 4</td>
<td>backtracking</td>
<td></td>
<td>asst 14 (algorithm design)</td>
</tr>
<tr>
<td>22</td>
<td>27</td>
<td>Dec 6</td>
<td>wildcard slot</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Summary
- **Topics**
  - Criteria
  - Everything Else
  - AI and algs
  - Break
  - Evaluation
  - EOLQs
How to Choose an Algorithm

- running time
- memory use
- solution quality (for optimization problems)
- guarantees on time, memory, or cost
- implementation complexity
  - correctness of algorithm & implementation
  - ease of testing
  - time to write
  - ease of maintenance
- generality
- popularity
  - ease of maintenance
  - correctness
- input required
- **topics**
  - geometry
  - strings
  - cryptography
  - numerical analysis
  - FFT

- **approaches**
  - randomized algorithms
  - on-line algorithms
  - parallel, distributed
  - cache-oblivious
  - external memory
  - models: quantum, DNA
CS 730/830 Introduction to Artificial Intelligence  
spring, Wheeler Rumml

CS 750/850 Introduction to Machine Learning  
spring, Marek Petrik

CS 733/833 Introduction to Mobile Robotics  
fall, Momotaz Begum

CS 753/853 Introduction to Information Retrieval  
fall, Laura Dietz

CS 980 Planning for Robots  
fall, Wheeler Rumml

and the UNH AI Research Group meets weekly all year round

Google “UNH AI Group” for details
final exam: Wed Dec 12 3:30-5:30pm, Kingsbury N101
no books, notes, gadgets, ...
We do read these (and so does my boss).

A. Class
1. Things you liked
2. Suggestions for improvement

B. Wheeler Ruml
1. Things you liked
2. Suggestions for improvement

C: Tianyi Gu
1. Things you liked
2. Suggestions for improvement

Background assumed?
How to make class appropriate for all CS majors?
Advice for students next year?
For example:

- What’s still confusing?
- What question didn’t you get to ask today?
- What would you like to hear more about?

Please write down your most pressing question about algorithms and put it in the box on your way out.

*Thanks!*