EECS 381 Fall 2019 Schedule Version 0

Reading Number is shown for the reading paper that is due on that date. E.g. Paper No. 1 is due at beginning of class on Sep 5. Readings Source: K&R: Kernighan & Ritchie, S: Stroustrup, H: Handout on course website (assigned handouts must be covered in your paper). Your paper must discuss each chapter, section, or handout listed; cover the entire chapter or section unless part of it is listed as “skip.” A section assigned as “skim” requires only a brief (e.g. one sentence) mention in your paper. Topics discussed in lecture will often overflow into the next class period, but reading assignments are still due on the scheduled date.

<table>
<thead>
<tr>
<th>Date</th>
<th>No.</th>
<th>Lecture topics, reading assignments, and projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 3</td>
<td>T</td>
<td>Organizational and Introduction.</td>
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<tr>
<td>Sep 5</td>
<td>Th 1</td>
<td>C concepts: prototypes, headers, linkage; C++ streams for Project 0</td>
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<td></td>
<td></td>
<td>• K&amp;R 1-4. Much will be familiar but watch for new information, especially in Ch. 4; notice the differences from previous C++ coverage.</td>
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<td></td>
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<td>• H: Header File Guidelines for C Programs (see above about handouts)</td>
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<td>• H: Notes on Basic C++ I/O. Needed for Project 0 since previous courses have not covered streams adequately.</td>
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<td>• H: Using C++ File Streams. Needed for Project 0 since previous courses have not covered streams adequately.</td>
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<tr>
<td>Sep 10</td>
<td>T</td>
<td>Pointers, Arrays, Function pointers, structures.</td>
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<td>Sep 12</td>
<td>Th</td>
<td>No new reading assignment, but if possible, read ahead in K&amp;R 7.8.5 about malloc/free</td>
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<td>Sep 13</td>
<td>F</td>
<td>*** Project 0 Due</td>
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<tr>
<td>Sep 17</td>
<td>T</td>
<td>I/O, Type safety, memory allocation.</td>
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<tr>
<td>Sep 19</td>
<td>Th 4</td>
<td>C++ review and preview. Lots to read, but this is a review of familiar things and a preview of later new material, so bear with it.</td>
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<tr>
<td>Sep 19</td>
<td>Th</td>
<td>Throughout Stroustrup, take time to think about his &quot;advice&quot; sections at the end of each chapter - extremely valuable.</td>
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<tr>
<td>Sep 23</td>
<td>M</td>
<td>*** Last day to drop without a &quot;W&quot;</td>
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<tr>
<td>Sep 24</td>
<td>T</td>
<td>Basic facilities. Much should be familiar, but watch for new techniques!</td>
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<tr>
<td>Sep 26</td>
<td>Th 6</td>
<td>Exceptions, Classes, objects with dynamic memory contents, the &quot;Rule of Five&quot;</td>
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<td>Sep 27</td>
<td>F</td>
<td>*** Project 1 Due</td>
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<tr>
<td>Oct 1</td>
<td>T</td>
<td>Operator Overloading, Basic Templates.</td>
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**K&R**: Kernighan & Ritchie, **S**: Stroustrup, **H**: Handout on course website (assigned handouts must be covered in your paper).
Oct 3 Th 8 Standard Library Containers, Strings, Streams.
• S 30. An overview of the library. Learn to read this stuff without getting bogged down in the details. Skip 30.3.1, 30.4.1.2 and 30.4.1.3, and all of 30.4.3.
• S 31. Note public interfaces described in compact tables. Use these for reference; read for the concepts. Skim 31.4.3.2 on unordered containers.
• S 34 on “almost containers” read 34.1 and 34.2 but skip 34.2.2 bitset and 34.2.3 vector<bool>; skim 34.2.4.2 tuple. Skip rest chapter for now.
• S 36 Strings. Skim this complete presentation of an extremely important and elaborate class; plan to look up as needed, follow his examples.
• S 38 Streams. Skim, but if confused, re-read the streams Handouts assigned earlier. Skip 38.5 for now, then skip 38.6 on buffering.

Oct 8 T 9 Algorithms, Iterators, Function Objects, Lambda, std::bind, pointers to member functions
• S 32 STL Algorithms. Skim 32.2.1
• S 33 Iterators. Skip 33.1.3. Go back and read 38.5 on stream iterators.
• S 20.6 Pointers-to-members - this little topic is out of place there, so read it now, but skim 20.6.2, skip 20.6.3.
• H: Heterogenous Lookup in the STL: We Don't Need Probe Objects!
• H: Fill'er Up: Winners and Losers for Filling an Ordered Container
• Read • H: Using C++11's Lambdas then return to an earlier chapter and read • S 11.4 Lambda Expressions
• H: Using C++11's bind with Containers and Algorithms

Oct 10 Th Basic Class Design. No reading assignment, but bring H: Basic Class Design to lecture to mark up
Oct 11 F *** Project 2 Due
Oct 15 T Fall Break - no classes
Oct 17 Th Project 1 Code Review
Oct 22 T Midterm Exam: 3:00-5:00 PM, Room(s) TBA, Date is tentative and may need to be changed depending on room availability.
Oct 24 Th No Class - catch-up for Project 3
Oct 25 F *** Project 3 Due
Oct 29 T Simple forms of inheritance and polymorphism: Inheritance & Virtual Functions
• S 20 Derived Classes. Skim 20.3.5, 20.3.5.1, 20.3.6, 20.5.3. We already read 20.6, so skip it this time.

Oct 31 Th 10 Using Virtual Functions and Introduction to OO Design. Lecture: Project 4 design overview. No reading assignment is due, but bring to lecture:
A hard copy of H: Introduction to UML, and H: Basic OOP Concepts (BasicOOPConcepts-HO.pdf) or the lecture notes on Basic OOP Concepts.

Nov 5 T 11 More on Inheritance and Virtual Functions; Exceptions and memory management, RAII, "smart pointers"
Read H: C++11's Smart Pointers then read • S 34.Memory and Resources, read 34.3, then Advice 34.7, Skip the rest of the chapter.
Nov 6 W *** Last day for drop as "W" without petitioning
Nov 7 Th Some Idioms and Design Patterns (no reading assignment - bring hardcopies of Lecture Notes: IdiomsDesPattsX.pdfs to mark up)
Nov 8 F *** Project 4 Due
Nov 12 T 12 Multiple inheritance and run-time type identification.
• S 22. Run-time Type Identification. Skip 22.2.4., 22.5.1, Skip 22.3.
Nov 14 Th More Idioms and Design Patterns (no reading assignment - bring hardcopies of Lecture Notes: IdiomsDesPattsX.pdfs to mark up)
TBA below: Either scheduled lecture topic(s) or Kieras holding additional office hours during class time.
Nov 19 T TBA:More Idioms and Design Patterns
Nov 21 Th TBA:More Idioms and Design Patterns, Non-technical Issues in Software Development (No reading assignment)
Nov 22 F *** Project 5 Due
Nov 26 T No class meeting - Extended office hours held in Kieras's office.
Nov 28 Th Thanksgiving Break - no classes
Dec 3 T No class meeting - Extended office hours held in Kieras's office.
Dec 5 Th No class meeting - Extended office hours held in Kieras's office.
Dec 10 F *** Project 6 Due - time and place for submission of hard copy materials to be announced. (No class meeting, no office hours.)
Dec 13 F FINAL EXAM, 10:30 AM - 12:30 PM Room TBA.