



SWE300

Crafting Quality Code

TTh, 10a - 11:50a, MCT158

Dr. Chen Huo

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Office Location: MCT150

Office Hours: M 11-12; W 12-1, 3:30-5:30; Th 11-12

[Link to my calendar](#)

The content of this schedule may change during the semester.

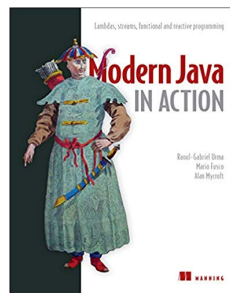
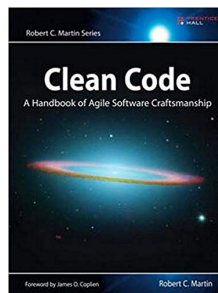
### Course Description:

This course will explore the differences between code that works and good code. This will include: designing during development, characteristics of interfaces, naming conventions, defensive programming, selecting data types, organizing code, controlling loops, unusual control structures, table driven methods. Students will explore open source projects to practice evaluating the quality of code.

**Credit Hours:** 4

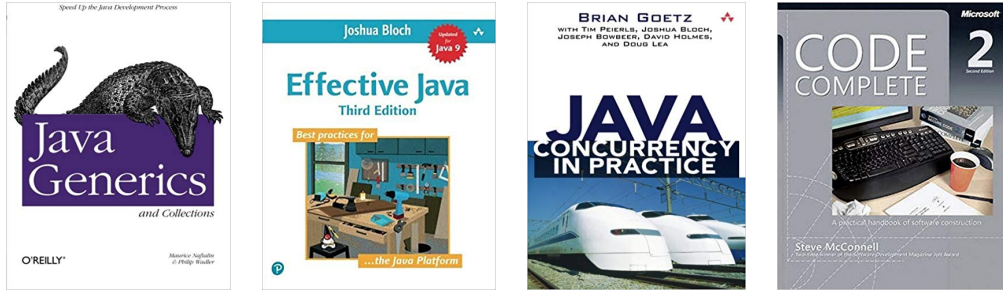
### Required Texts:

1. (CC) *Clean Code*, **ISBN-13:** 9780132350884
2. (MJA) *Modern Java in Action*, 2<sup>nd</sup> Edition, **ISBN-13:** 9781617293566



### Recommended Texts:

1. (JGC) *Java Generics and Collections*, **ISBN-13:** 9780596527754
2. (EJ) *Effective Java*, 3<sup>rd</sup> Edition, **ISBN-13:** 9780134685991
3. (JCP) *Java Concurrency in Practice*, **ISBN-13:** 9780321349606
4. (CC2) *Code Complete 2*, 2<sup>nd</sup> Edition, **ISBN-13:** 9780735619678



**Website:**

- D2L
- Piazza (signup link: <https://piazza.com/ship/spring2020/swe300>)

**Grade Distribution:**

Attendance	5%
Homework Assignments	20%
Labs	30%
Exam1	15%
Exam2	15%
Final Exam	15%
Extra Credits	0 – 5%

**Letter Grade Distribution:**

$\geq 93.00$	A	70.00 - 76.99	C
90.00 - 92.99	A-	60.00 - 69.99	D
87.00 - 89.99	B+	$\leq 59.99$	F
83.00 - 86.99	B		
80.00 - 82.99	B-		
77.00 - 79.99	C+		

**Course Policies:**

- You cannot use any electronic devices in class unless you are told to.
- **Lecture Notes**
  - Slides will be released as notes on D2L after every lecture.
  - Students are expected to take notes. Some contents in the slides and written on the board are not from the textbook. You are recommended to use an actual notebook instead of a computer to take notes. Research show that using a computer to take notes not only distracts other people but also affects your own productivity. You may consider to scan your notes once for a while.
  - All important materials of the course will be managed on D2L, e.g. homework copies, quiz solutions, labs.
- **Homework and Labs**

- Late policy: Homework and labs that are late will be hit with a 20% penalty for the first 48 hours, and will not be accepted thereafter.
- Format: Homework and labs must be submitted in the correct format.
- A list of labs and what they are about can be found in the table below.

Lab no.	Topic
1	Gently down the Stream
2	Shall I write methods with Optional parameters?
3	Lazy is a virtue.
4	Either<A,B>: Something to replace Exceptions
5	Debugger and Debugger Interface

- Generally homework is individual work and labs are done by a team of three. The two horizontal lines in the table above represent two chances for changing teams.

- **Grades**

- All grades that matters will be maintained on D2L. Students are responsible for tracking their progress by referring to the online gradebook. D2L will also tell you what final grade is expected if you are consistent in your performance.
- You can dispute your grade for a certain item within **ONE** week after the grade is released. For example, you *cannot* dispute your grade of the first homework at the end of the semester.
- The lowest two quizzes and the lowest homework will be dropped.

- **Attendance**

- Attendance is expected and will be taken.
- Up to two excused absences is allowed unless something extreme happens.
- If possible, please inform me of your absence before class.
- If you are not able to make the notice before class, you will have to provide formal evidence, such as doctor's notes, military training notice, etc.
- Otherwise each absence is 1% of the final grade until the 5% attendance part runs out.

### **Academic Honesty Policy Summary:**

Those students found violating Shippensburg's academic dishonesty policy will be dealt with on a case by case basis. Minimal punishment should it be a first offense is a zero for the assignment and signing a form admitting to the offense. Second offenses are handled directly by the office for the Dean of Students. See additional information about academic Dishonesty within the Computer Science Department

## Tentative Course Outline:

The weekly coverage might change as it depends on the progress in class.

Week	Lecture	Related Reading
Week 1	Course Intro; Implement Boolean values	
	Generics; Lambda expressions	EJ [26,29,30]; JGC preface, p4-6
Week 2	More lambda expressions; <code>java.util.function</code>	MJA Ch3
	Intro to <code>Stream</code>	MJA Ch4.1-4.3
	loops and stream	EJ [58]; MJA Ch5.1-5.3, 6.1-6.4
Week 3	More stream; Lab 1 explained	[Bird] p1-9; Lab 1
	Collections	MJA Ch8.1-8.3; JGC p145-146
Week 4	<code>null</code> is evil, use <code>Optional</code> .	MJA Ch11
	Lab 2 explained	
Week 5	Error Handling and Exceptions	EJ [69,70,71]; CC Ch7
	Lab 3 explained; Review	
Week 6	<b>Exam 1</b> (week 1 – week 5)	
	Variables (names, scope, span, etc.)	CC2 Ch10.4-10.6; CC Ch2
Week 7	Guest talk (TBD)	
	Lab 4 Explained	
Week 8	<b>Spring Break</b>	
Week 9	Race condition; <code>synchronized</code>	EJ [78]; JCP p20-22; CC Ch13
	<code>Executor</code> ; Why “thread pool”?	JCP Ch6.3.1-6.3.3
Week 10	<code>Future</code>	JCP Ch6.3.1-6.3.3
	Back to <code>Future</code>	MJA Ch16
Week 11	Review	
	<b>Exam 2</b> (week 7 – week 11)	
Week 12	Toyota Report	Barr’s slides
	Garbage Collection	EJ [7]; Paper
Week 13	Debugger, Lab 5 explained	
	Refactoring	CC Ch17; CC2 Ch24.3
Week 14	Code tuning; Difference lists	EJ [67]; CC2 Ch26; HW6
	More tuning; Table driven methods	CC2 Ch18
Week 15	Review	
Final	<b>Exam 3</b> (week 12 – week 15)	