

# Proposal for CS-030 Mayterm Online Class

## CS-030: Abstract Models For Concrete Problems Using Java

### Method of Delivery:

There are a lot of different ways to run an online class. At one extreme is a completely hands-off model. This is what a company like Coursera does. Once the instructor prepares the materials they are placed online and students read or watch the material and participate in some kind of assessment that doesn't require the faculty members involvement at all. All activities are computer mediated and consumed asynchronously. Typically this includes auto-graded exams or possibly peer-review exercises. This is typical of the "MOOC".

At the other end of the spectrum is a fully synchronous video conference style course. In this style of course, the teacher and students are online at the same time. The teacher presents the material, while the students watch or participate in a discussion over a video conference. After class students have homework and activities similar to any class, but any group interaction is computer mediated. There is no record of the class interaction provided just like an in person class.

If you bust through the end of the spectrum and include in-person elements you are now describing a hybrid class in which some components are computer-mediated. This might be a flipped classroom where instruction is done online and face-to-face class time is spent more in a tutoring or workshop style class. It might also be a class that meets in person at the beginning and end of the term for "an intensive" and then completes the rest of the class online between the two events

For CS-030 I would like to propose a hybrid model in which students can take the class in person or remotely. I will utilize YouTube to record lectures that are broadcast live to an actual classroom with (possibly) live students in it. YouTube will allow remote participants to watch the lecture simultaneously, in a DVR style, or completely asynchronously. For synchronous participants questions can be asked live whether from the local location or from a remote participant. The remainder of the assignments would include weekly quizzes administered through Canvas, programming assignments done alone and turned in on Canvas and exams. The exams would be proctored by remote participants by a proctoring center or through an online Proctor service. All due dates would be the same for the local or remote participants. I would also like to do this at least one day a week from the Westmont Downtown facility to become more familiar with the site and to engage more with the work that is happening there and in Santa Barbara.

### Maintain Quality:

I think the important thing to realize with an online Mayterm class is that alternative isn't an in-person Mayterm class. Instead we are competing against an online class somewhere else or an in-person class taken somewhere else - likely at a community college.

Generally speaking I don't think that online classes are as good as in person classes. It is hard to get the same kind of interaction and intellectual development online as you can get face-to-face. But I think it is possible that an online class can be better than a bad in person class. And there are some good practices that have been developed to keep remote

participants engaged such as synchronous office hours, peer review, personalized content and regular online interaction with an instructor.

A big risk factor with online classes is cheating because it is difficult to be sure that someone is who they say they are and that they are the one actually doing the work. Again, it is easier to figure this out in person. With remote exam proctoring though, the performance on the proctored exam should be correlated with assignment performance if there isn't any cheating going on

### **Experience:**

I've created/offered about 7 different online classes (depending on how you count). 2 undergraduate courses offered 5 times, 1 general public class on Coursera taken by 108,000 people (!) and 1 graduate class. The undergraduate and grad classes were using the Canvas platform and were mostly asynchronous, but the classes all worked on the same content during the same week.

I have never done a YouTube simulcast for a class, but I have done it for conference presentations before. Trying to mitigate the amount of video production will be an important aspect of teaching the class.

# Course Structure - Spring 2017

CATALOG ▾ ✕

## CS 030: Abstract Models For Concrete Problems Using Java

"Introduction to object-oriented programming. Abstract data types including lists, stacks, queues, and trees. Sorting and searching algorithms. Big-O notation. Software testing and program verification. Discussion of ethical issues arising from the creation and use of computer programs."

INSTRUCTORS ▾ ✕

Professor Don Patterson (<http://www.djp3.net>)

**Lecture:** Tu Th: 1:15 - 3:05pm

**Classroom:** Winter Hall 216 ([http://www.westmont.edu/\\_visitors/pdf/map.pdf](http://www.westmont.edu/_visitors/pdf/map.pdf))

**Discussion Section:** N/A

**Telephone:** 7028 (on campus) 805-565-7028 (off campus)

**Email:** [dpatterson@westmont.edu](mailto:dpatterson@westmont.edu)

**Office Hours:**

- Mondays 3:10pm to 4:10pm
- Wednesdays 3:10pm to 4:10pm
- Thursdays 10:00am to 11:00am

(<http://webapps.westmont.edu/cgi-bin/WebObjects/advisorschedule.woa/wa/Student>)

There are 146 available appointments, shared across all my classes and my advisees. Drop-in or reserve a 20 minutes appointment here (<http://webapps.westmont.edu/cgi-bin/WebObjects/advisorschedule.woa/wa/Student>) (my email user name is "dpatterson")

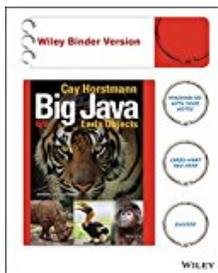
**Teaching Assistant:** N/A

**Email:** N/A

**Office Hours:** N/A

BOOKS ▾ ✕

The following book(s) are required for this class.



([https://www.amazon.com/Big-Java-Binder-Ready-Version/dp/1119056446/ref=as\\_li\\_ss\\_il?](https://www.amazon.com/Big-Java-Binder-Ready-Version/dp/1119056446/ref=as_li_ss_il?_encoding=UTF8&psc=1&refRID=RPDWTF8CMMR7XQV67YSC&linkCode=li2&tag=donalpatte-20&linkId=02356b5d8ceb0011b2bb2bae566e248a)

[\\_encoding=UTF8&psc=1&refRID=RPDWTF8CMMR7XQV67YSC&linkCode=li2&tag=donalpatte-20&linkId=02356b5d8ceb0011b2bb2bae566e248a](https://www.amazon.com/Big-Java-Binder-Ready-Version/dp/1119056446/ref=as_li_ss_il?_encoding=UTF8&psc=1&refRID=RPDWTF8CMMR7XQV67YSC&linkCode=li2&tag=donalpatte-20&linkId=02356b5d8ceb0011b2bb2bae566e248a))

Big Java: Early Objects (<http://amzn.to/2j4VDp6>) by Horstmann

# Java Structures

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*Data Structures in Java for the Principled Programmer*

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*The  $\sqrt{7}$  Edition*  
*(Software release 33)*

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*Duane A. Bailey*

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Williams College  
September 2007

Java Structures by

Duane A. Bailer (<http://dept.cs.williams.edu/~bailey/JavaStructures/Welcome.html>)

## COMPONENTS $\vee$ $\times$

Class Attendance / Participation (3 dropped)	~15%
Homeworks	~15%
Programming Assignments	~35%
Exam #1	~10%
Exam #2	~10%
Exam #3	~15%

As the class progresses I may find it necessary to alter the percentages.

This class is a lot of work. You will have to develop computer programs. You will have to read a lot.

Here are some things you will be learning:

- The Java language

- How to work with Eclipse
- Common abstractions in computer science
- Algorithmic Evaluation

Letter grades will be calculated according to this table

Percent	Letter Grade
[94 - 100]	A
[90 - 94)	A-
[87 - 90)	B+
[83 - 87)	B
[80 - 83)	B-
[77 - 80)	C+
[73 - 77)	C
[70 - 73)	C-
[67 - 70)	D+
[63 - 67)	D
[60 - 63)	D-
< 60	F

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#### GENERAL PHILOSOPHY ∨ ✕

I prefer to give many small assignments which build up a picture of overall student learning success and not just rely on large exams which students may bomb based on non-learning related complications. Nonetheless, exams are very motivating.

At the end of the day, learning requires the active initiative of the student. I consider myself someone who points students in the right direction and can/will explain the fundamentals of a subject matter. I can't actually do the work of learning for a student. That takes effort and self-motivation. I will help to provide structure and incentives for that learning, but you also need to learn how to expand on this subject yourself. In a technical field like this, you will be left behind the field in about six months, regardless of how well I present the subject matter, if you can't keep learning on your own.

I like to stop talking periodically, until students ask questions.

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#### CLASS PARTICIPATION ∨ ✕

Class attendance will be determined by completing index cards. The index cards are also a means for me to get feedback about the course.

For each class please write your name on a card, the date, your student ID and a comment about the course.

If you would like to submit an anonymous comment, take an extra card and don't put your name on it.

Collecting feedback this way is a useful and different source of input than other media. It helps me track how the class is understanding the material. Something about paper causes students to say different things than they do on a website.

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#### HOMEWORK ASSIGNMENTS ∨ ✕

Each chapter will have a homework assignment associated with it. It will be an online multiple-choice exam which will generally be due every Monday evening.

The homeworks are individual assignments and are drawn from the textbook and lecture.

They are designed to support self-study. They will be implemented in such a way that you can return to correct items that you get wrong.

You should approach each homework as a chance to study, and evaluate your understanding of the material. The exam questions will be drawn from the homework questions.

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#### PROGRAMMING ∨ ✕

Each chapter will also have a programming assignment associated with it. The deliverable for the assignments will vary but will typically be an executable jar file and the source code for your program. The programming assignment will also generally be due every Monday evening.

The programming assignments may be done in pairs or individually.

The goal of the programming assignments is to give you a chance to familiarize yourself with the Java language and basic software tasks. Rather than producing extensive deliverables the focus is on learning to teach yourself from on-line resources. This will hopefully form the basis of being able to create more extensive projects in the future.

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#### QUIZZES ∨ ✕

This class will have no quizzes.

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#### EXAMS ∨ ✕

This class will have 2 in class exams. They will be multiple-choice exams that should take up the majority of a class period.

The third exam will be held during the final exam slot.

Each exam is cumulative over the previous work although more heavily weighted toward the new material.

The exam questions will be drawn from the homework assignments.

The exams will be closed book.

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#### TOOLS ∨ ✕

I strive to pick the best-of-class tools to use to administer this class and with which to teach. That requires using multiple websites. They are carefully chosen. Unfortunately, like most of the rest of online activities they are also highly fragmented (not one super-tool). We utilize several online tools in this class. Please familiarize yourself with their use and location. I expect you to check in and use all of them:

This semester our tools will consist of the following:

1. This web page ([http://djp3.westmont.edu/classes/2017\\_01\\_CS030/calendar.html#now](http://djp3.westmont.edu/classes/2017_01_CS030/calendar.html#now)): in particular the calendar part, is the authoritative location for communicating assignments, materials from the class and due dates.
  2. Canvas for the gradebook (<https://westmont.instructure.com/courses/460>)
  3. Canvas for logistics (<https://westmont.instructure.com/courses/460>)
  4. Email if absolutely necessary
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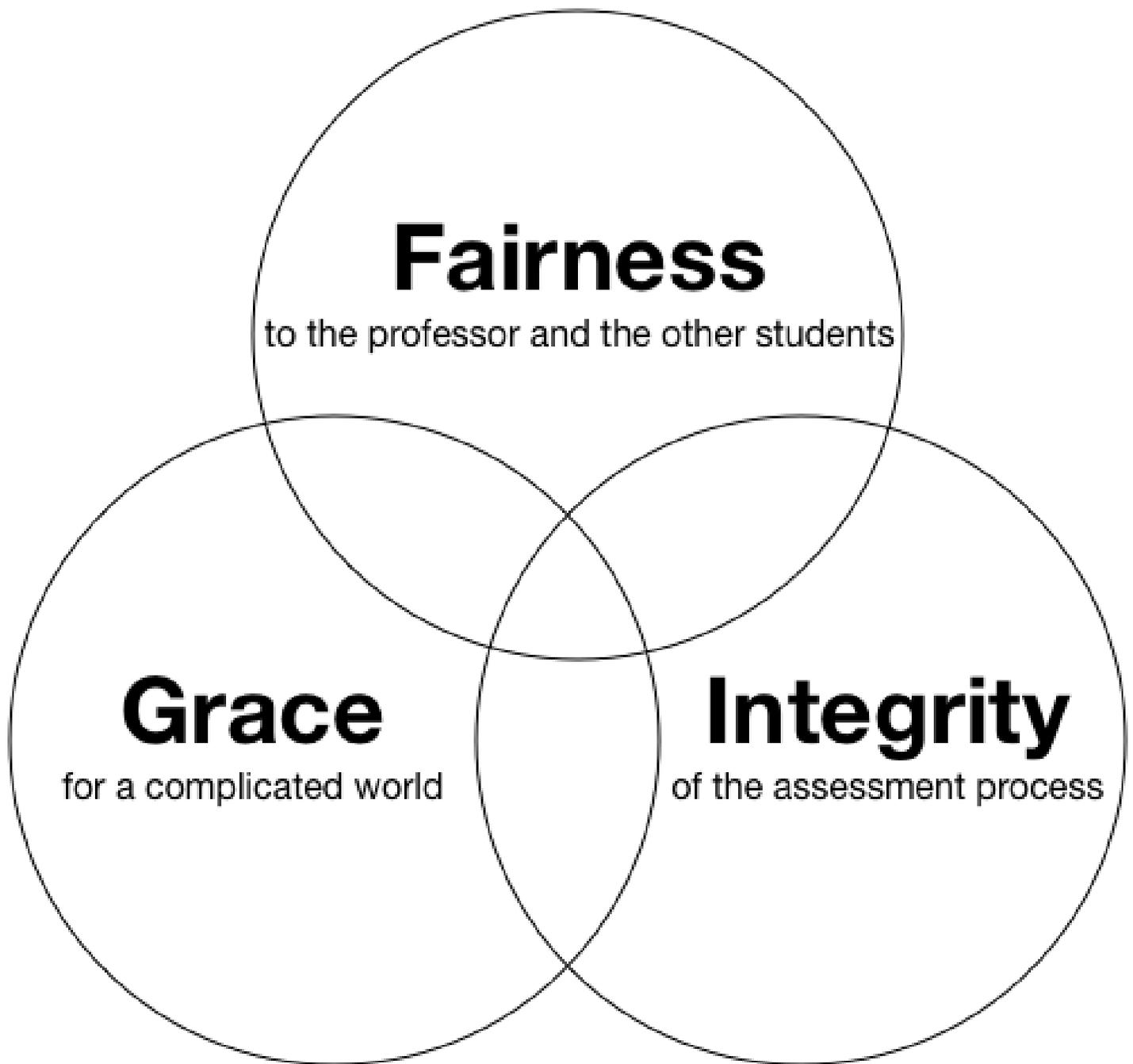
#### DURING CLASS ∨ ✕

Another way in which technology is changing is the way it is used during lecture time.

On the one hand my students are almost always adults. You should be able to choose to use electronics in class if you want. On the other hand there is a world of sophisticated software, marketing and designs that are doing everything they can to get your attention. They are so good at what they do that you don't have control over your own cognition. One thing that is clear - if you have your laptop

# Admin Policies - Spring 2017

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ATTENDANCE ∨ ✕

Participation is part of your grade.

Students are responsible for material that is disseminated during class. If you miss class, please arrange beforehand with a friend to get notes/handouts for you. If you know you are going to miss something, contact the instructor beforehand. It's much easier to accommodate planned absences.

Students are responsible for all material taught in this course. If you join the class later in the semester, you are expected to complete all missed work immediately.

Although letting the Professor know beforehand is helpful for your learning, it is not sufficient to get participation credit for the day that you miss.

Participation will be primarily evaluated through the use of index cards in class.

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#### ANNOUNCEMENTS

The primary places where announcements will be made will be in class and via the Canvas Announcement Forum.

A test post is up on Canvas. If you don't see it, please investigate the problem so that you do not miss required information. I highly recommend subscribing to the announcements so you get information pushed to you.

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#### EMAIL

Before you email, please consider if it would be more effective to talk after class or during office hours. Email is a poor medium for complex communication, at least for me. Nonetheless feel free to email me if necessary. Some things that help me to answer your email is if you include the class code, "[CS 030]", at the beginning of the subject line. If you do not get a response to the email in 24 hours (except weekends), please resend it to bump it to the top of my inbox.

Also consider two other alternative methods of communication: Posting something on the class announcement board so that others can benefit from the conversation or talking to me after class or during office hours. Regardless of how ninja I am, email is tough. I may ask you to use one of these methods instead in response to your email.

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#### LATE PENALTY

This class moves fast and staying on top of readings will be critical for your success.

The late penalty is 1% per hour after the due date.

Some assignments don't support late accommodation, for example, exams and participation.

Due dates are specified with a date and time in local time.

For example, if an assignment's due date is 11:59pm on Monday night and it is turned in on 11:59pm Tuesday night it is 24 hours late will be result in a 24% penalty.

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#### SICK POLICY

If you find that you are unable to make it to a scheduled event (class, exam, presentation, etc.) due to sickness, please get some documentation from a health care provider to assist us in maintaining fairness to the other students in the class. In the absence of such documentation, please contact the staff as soon as you realize that you are going to miss a scheduled event. Generally sicknesses will be treated on a case by case basis. We will accommodate you as best as we can depending on the circumstances, but I also want to maintain fairness to the other members of the class by guarding against using sickness as an excuse to not meet requirements.

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#### ADD/DROP POLICY ∨ ✕

Standard time lines apply.

The prerequisites are there for a reason, so if you are asking me to waive them, please be prepared to do an assignment to justify it.

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#### INCOMPLETES POLICY ∨ ✕

I will only offer an incomplete grade to a student who, through some **unforeseen emergency**, is unable to complete the requirements of the course. I will likely seek help from other faculty in assessing the best way to handle the situation because it's never not messy.

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#### ACADEMIC HONESTY ∨ ✕

In general I have found that I regularly have to fail about 2% of my students for cheating. That's roughly 1 in every class of 50. Will it be you this term?

This is not a job. This is a class. Someone is paying me to make sure that you learn about this topic. When I give you assignments, it isn't because I want to know the answer. I usually know the answer. I want you to do the hard work of finding out the answer in a particular way. This is how you learn something. You can give me a "correct" answer that you obtained in an incorrect way. That isn't the goal. Let me repeat. I generally know the answers. Your grade is about you learning. Academic Honesty is about getting the answers in the right way so that you actually learn. Some of the things you do in my class will therefore be inefficient and difficult.

You may never use anyone else's work without clearly acknowledging the source. This includes code you find on the web, text from books, and answers from friends. Doing so is called plagiarism.

Plagiarism is any work that you use that you did not create and do not credit. If you plagiarize another work without crediting the source, you will receive a failing grade for the entire course at the discretion of the instructor. It takes 2 seconds to cite your source. If you want to be intellectually lazy, do something else with your life.

However, if an assignment requires you to do the work yourself, and you copy work from another source, but acknowledge it, then you did not fulfill the requirements of the assignment. This is also grounds for failing an assignment - albeit not plagiarism.

This has happened in my courses before, it has happened in conferences that I have chaired and I have sat in conferences in which others have presented my work verbatim. In each of these cases I took the strongest possible recourse available to me at the time. Our global academic system relies on properly crediting sources for everything to function.

## Copying code counts as plagiarism

I have kicked students out of college for cheating in my courses.

Please familiarize yourself with the academic integrity policy:

[http://www.westmont.edu/\\_offices/registrar/academic\\_policies/academic-dishonesty.html](http://www.westmont.edu/_offices/registrar/academic_policies/academic-dishonesty.html)  
([http://www.westmont.edu/\\_offices/registrar/academic\\_policies/academic-dishonesty.html](http://www.westmont.edu/_offices/registrar/academic_policies/academic-dishonesty.html)).

Please read a more detailed definition of plagiarism defined by the ACM:

[http://www.acm.org/publications/policies/plagiarism\\_policy](http://www.acm.org/publications/policies/plagiarism_policy)  
([http://www.acm.org/publications/policies/plagiarism\\_policy](http://www.acm.org/publications/policies/plagiarism_policy)).

If you are in doubt ask. It will go so much better than if plagiarism is discovered on its own.

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## SCHEDULE ∨ ✕

The calendar web page for the class is subject to update. Check it frequently and be sure to refresh / reload the web pages when you browse them.

Please follow the assignments exactly. If you need clarification, ask before the assignment is due.

If there is a discrepancy between Canvas and the calendar page, the calendar page takes precedence

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## ACADEMIC ACCOMMODATION ∨ ✕

Students who have been diagnosed with a disability (learning, physical/medical, or psychological) are strongly encouraged to contact the Disability Services office as early as possible to discuss appropriate accommodations for this course. Formal accommodations will only be granted for students whose disabilities have been verified by the Disability Services office. These accommodations may be necessary to ensure your full participation and the successful completion of this course. For more information, contact Sheri Noble, Director of Disability Services (565-6186, [snoble@westmont.edu](mailto:snoble@westmont.edu)) or visit the website [http://www.westmont.edu/\\_offices/disability](http://www.westmont.edu/_offices/disability) ([http://www.westmont.edu/\\_offices/disability](http://www.westmont.edu/_offices/disability)).

More generally I want to see you succeed! Let's figure out a way for you to meet the requirements of the course in a way that is fair to you and everyone else.

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# Spring 2017

BEFORE CLASS ▾ ✕

- 📖 Get a copy of the textbook(s)
- 📍 Figure out where class is

1/9 - 1/13 (WEEK 1) ✕

## Tuesday

- 📖 Read: Ch. 1
- 📄 Welcome! (Slides (Lectures/Lecture\_01.pdf))
- 📄 Scan of Chapter 1 (Lectures/Chapter1Scanned.pdf)
- 🔊 Pa' Bailar (<https://www.youtube.com/watch?v=EfUspBo4EwM>) by Bajofondo

## Thursday

- 📖 Read: Ch. 2
- 📄 Ch. 1 Introduction (Slides (Lectures/Lecture\_02.pdf))
- ✍️ Get To Know You Survey
- 📺 YouTube instructions for Hello World (<https://youtu.be/IXcoR1oGj38>)
- 🔊 Pata Pata 2000 (<https://www.youtube.com/watch?v=zqTZaK98U2o>) by Miriam Makeba

1/16 - 1/20 (WEEK 2) ✕

## Monday

- ✍️ Ch 1 Homework Set ([https://westmont.instructure.com/calendar?include\\_contexts=course\\_460#view\\_name=month](https://westmont.instructure.com/calendar?include_contexts=course_460#view_name=month))
- ⚙️ Ch 1 Programming (<https://westmont.instructure.com/courses/460/assignments/5530>)

## Tuesday

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## Thursday

- 📄 Using Objects Part 1
- 📺 Reality Editor Video (<http://dl.acm.org/citation.cfm?id=2889431&CFID=890788925&CFTOKEN=63368443>)
- 🔊 Derek Webb: King and a Kingdom (<https://youtu.be/lPCz1JfQlOo>)

1/23 - 1/27 (WEEK 3) ✕

## Monday

- ✍️ Ch 2 Homework Set ()
- ⚙️ Ch 2 Programming (<https://westmont.instructure.com/courses/460/assignments/5652>)

## Tuesday

- 📖 Read: Ch. 3
- 📄 Implementing Classes Part 1 (Eclipse Clucker Project (Lectures/Lecture\_04/Clucker.zip))
- 🔊 Give it up (<https://www.youtube.com/watch?v=3mH5Pq5L3bs>) by The Good Men

## Thursday

- 📄 Implementing Classes Part 2
- 📄 Code in Class (BankAccount.java (Lectures/Lecture\_05/BankAccount.java))
- 📺 BoomChaCha (<http://delivery.acm.org/10.1145/2900000/2890368/supp/sgc121.mp4?ip=128.195.4.226&id=2890368&acc=ACTIVE%20SERVICE&key=CA367851C7E3CE77%2EE385B6E260950907%2E7AE75E81E00EF252%2E4D4702B0C3E38B35&CFID=890788925&CFTOKEN=63368443>)
- 🔊 Perfect Time of Day (<https://www.youtube.com/watch?v=hjldv54ln6g>) by Howie Day

1/30 - 2/3 (WEEK 4) ✕

## Monday

- ✍️ Ch 3 Homework Set (<https://westmont.instructure.com/courses/460/quizzes/805>)

⚙ Ch 3 Programming (<https://westmont.instructure.com/courses/460/assignments/5709>)

## Tuesday

- 📖 Read: Ch. 4
- 📄 JUnit Testing (Slides (Lectures/Lecture\_05.pdf))
- 📄 Fundamental Datatypes Part 1

## Thursday

- 📄 Fundamental Datatypes Part 2
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2/6 - 2/10 (WEEK 5) ✖

## Monday

- ✍ Ch 4 Homework Set (<https://westmont.instructure.com/courses/460/assignments/5813>)
- ⚙ Ch 4 Programming (<https://westmont.instructure.com/courses/460/assignments/5823>)

## Tuesday

- ✍ Exam 1 in Class
- 🔊 My Hero, Zero (<https://youtu.be/zxYsgRsNg2s>)

## Thursday

- 📖 Read: Ch. 5
  - 📄 Review Exam
  - 📄 Decisions Part 1
  - 📄 GroupWork Slides: pdf (Lectures/Lecture\_2017\_02\_09.pdf)
  - 🔊 Justin McRoberts: Undecided (<http://amzn.to/1QasrYX>)
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2/13 - 2/17 (WEEK 6) ✖

## Tuesday

- 📄 Decisions Part 2
- 🔊 Al Green: I'd still choose you (<http://amzn.to/1TsFhCj>)

## Thursday

- 📖 Read: Ch. 6
- 📄 Loops Part 1
- 📺 Autonomous Drone (<https://www.youtube.com/watch?v=a5Q2W0r5e-s>)
- 🔊 Suburban Kids with Biblical Sounding Names: Loop Duplicate My Heart (<http://amzn.to/1OrdMB4>)

## Friday

- ✍ Ch 5 Homework Set (<https://westmont.instructure.com/courses/460/quizzes/809>)
  - ⚙ Ch 5 Programming (<https://westmont.instructure.com/courses/460/assignments/6013>)
- 

2/20 - 2/24 (WEEK 7) ✖

## Tuesday

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## Thursday

- 📄 Loops Part 2
  - 🔊 World Wide Message Tribe: Revolution (Loopy Leslie Mix (<http://amzn.to/1QHUEQQ>))
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2/27 - 3/3 (WEEK 8) ✖

## Monday

- ✍ Ch 6 Homework Set (<https://westmont.instructure.com/courses/460/quizzes/810>)
- ⚙ Ch 6 Programming (<https://westmont.instructure.com/courses/460/assignments/6014>)

## Tuesday

- 📖 Read: Ch. 7
- 📄 Arrays and Array Lists
- 🔊 Madonna: A Ray of Light (<http://amzn.to/1pmJlYx>)

## Thursday

- 📖 Read: Ch. 15
- 📄 The Java Collections Framework Part 1

3/6 - 3/10 (WEEK 9) ✖

### Monday

- ✎ Ch 7 Homework Set (<https://westmont.instructure.com/courses/460/quizzes/811>)
- ⚙ Ch 7 Programming (<https://westmont.instructure.com/courses/460/assignments/6018>)

### Tuesday

- 📖 The Java Collections Framework Part 2
- 🔊 Little Shop of Horrors: The Meek Shall Inherit (<http://amzn.to/1LP1sQT>)

### Thursday

- 📖 Read: Ch. 16
  - 📖 More Java Collections Framework
  - 🔊 Burlap to Cashmere: Basic Instructions (<http://amzn.to/1peUmLC>)
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3/13 - 3/17 (SPRING BREAK) ∨

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3/20 - 3/24 (WEEK 10) ∨ ✖

### Monday

- ✎ Ch 15 Homework Set (<https://westmont.instructure.com/courses/460/quizzes/812>)
- ⚙ Ch 15 Programming (<https://westmont.instructure.com/courses/460/assignments/6019>)

### Tuesday

- 📖 Basic Data Structures  
(LinkedListTest (Lectures/Lecture\_2017\_03\_21/LinkedListTest.java))  
(ListIterator (Lectures/Lecture\_2017\_03\_21/ListIterator.java))
- 🔊 Wild Cub: Thunder Clatter (<http://amzn.to/1XsMJMf>)

### Thursday

- ✎ Exam 2 in Class (through 15)
  - 🔊 Interjections (<https://youtu.be/YkAX7Vk3JEw>)
- 

3/27 - 3/31 (WEEK 11) ∨ ✖

### Tuesday

- 📖 Basic Data Structures
- 🔊 Brave Saint Saturn: Binary (<https://youtu.be/I4uxWfPVvJg>)

### Thursday

- 📖 Read: Ch. 18
- ⚙ HashTableDemo.java (Lectures/Lecture\_2017\_03\_30/HashTableDemo.java)  
HashTableDemoTest.java (Lectures/Lecture\_2017\_03\_30/HashTableDemoTest.java)
- 📖 Generic Classes Part 1

### Friday

- ✎ Ch 16 Homework Set (<https://westmont.instructure.com/courses/460/quizzes/813>)
  - ⚙ Ch 16 Programming (<https://westmont.instructure.com/courses/460/assignments/6431>)
- 

4/3 - 4/7 (WEEK 12) ∨ ✖

### Tuesday

- 📖 Generic Classes Part 2 (pdf (Lectures/Lecture\_2017\_04\_04/Lecture\_2017\_04\_04.pdf))

### Thursday

- 📖 Recursion Intro (<https://youtu.be/Px8dgjKeh5l>)
- 📖 Read: Ch. 13
- 📖 Recursion Part 1

### Friday

- ✎ Ch 18 Homework Set (<https://westmont.instructure.com/courses/460/assignments/5819>)
- ⚙ Ch 18 Programming (<https://westmont.instructure.com/courses/460/assignments/6432>)