

Course Syllabus

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INFO-C112: Programming and Databases

3.0 Credits, Fall 2019

Instructor Information

Dr. Hisham Sliman

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Email is by far the best way to contact me. Please include the course number (INFO-C112) in the subject of your email. If you email about a particular homework or quiz problem, it's always a good idea to copy/paste the particular problem you're asking about since you already have a context for your question by asking about it but I have none when I first read your email. I generally reply within 24 hours. Although you may be addressing others by their first name, "Dr. Sliman" is the proper way to address me in correspondence.

Office Hours

TTH 11AM-12:15 PM online in [my virtual office](https://iu.zoom.us/my/hsliman) [\(https://iu.zoom.us/my/hsliman\)](https://iu.zoom.us/my/hsliman). (If I don't notice you showing up in the online office, you may need to send me an email to act as a notification!) Other hours by appointment.

Textbooks

Both textbooks below are required, but you can read them for free online. Try them both online and decide if you prefer to read them there or want to buy a hard copy.

Required: [Think Java](http://greenteapress.com/wp/think-java/) [*\(http://greenteapress.com/wp/think-java/\)*](http://greenteapress.com/wp/think-java/), *Version 6* by Downey and Mayfield.
[Available online](http://greenteapress.com/wp/think-java/) [*\(http://greenteapress.com/wp/think-java/\)*](http://greenteapress.com/wp/think-java/) or buy a hardcopy if you prefer.

Required: [SQL For Microsoft Access, 2nd edition](https://iu.skillport.com/skillportfe/main.action#summary/BOOKS/RW%243517:ss_book:28581) [*\(https://iu.skillport.com/skillportfe/main.action#summary/BOOKS/RW%243517:ss_book:28581\)*](https://iu.skillport.com/skillportfe/main.action#summary/BOOKS/RW%243517:ss_book:28581), by Cecelia Allison and Neal Berkowitz. Available online through [Skillport from your IU campus library](http://iu.skillport.com/) [*\(http://iu.skillport.com/\)*](http://iu.skillport.com/) or buy a hardcopy

Technology Requirements

The following software will be used in this course:

- Microsoft Access running in [IU AnyWare](https://uits.iu.edu/iuanyware) [*\(https://uits.iu.edu/iuanyware\)*](https://uits.iu.edu/iuanyware). See Microsoft's Privacy Policy [here](https://privacy.microsoft.com/en-us/privacystatement) [*\(https://privacy.microsoft.com/en-us/privacystatement\)*](https://privacy.microsoft.com/en-us/privacystatement) along with its [accessibility statement](#)

[_ \(https://www.microsoft.com/en-us/accessibility/office\)_](https://www.microsoft.com/en-us/accessibility/office).

- NetBeans (from the Apache Foundation) + JDK (from Oracle, either Java SE or EE is ok) NetBean's privacy policy is [here](https://netbeans.org/about/legal/privacy.html) [_ \(https://netbeans.org/about/legal/privacy.html\)_](https://netbeans.org/about/legal/privacy.html). As of June 2019, there is no accessibility policy available for NetBeans. Oracle's privacy policy is [here](https://www.oracle.com/legal/privacy/privacy-policy.html) [_ \(https://www.oracle.com/legal/privacy/privacy-policy.html\)_](https://www.oracle.com/legal/privacy/privacy-policy.html) along with their [accessibility statement](http://www.oracle.com/us/corporate/accessibility/index.html) [_ \(http://www.oracle.com/us/corporate/accessibility/index.html\)_](http://www.oracle.com/us/corporate/accessibility/index.html).
- This course site runs on Canvas. Its privacy policy is [here](https://www.canvaslms.com/policies/privacy) [_ \(https://www.canvaslms.com/policies/privacy\)](https://www.canvaslms.com/policies/privacy) and its accessibility statement is [here](https://www.canvaslms.com/accessibility) [_ \(https://www.canvaslms.com/accessibility\)_](https://www.canvaslms.com/accessibility).
- Zoom is used for online office hours. Zoom's [privacy policy](https://zoom.us/privacy/) [_ \(https://zoom.us/privacy/\)](https://zoom.us/privacy/) and [accessibility statement](https://zoom.us/accessibility) [_ \(https://zoom.us/accessibility\)](https://zoom.us/accessibility) are available.
- A recommended, interactive version of the textbook is available on [Trinket](https://trinket.io) [_ \(https://trinket.io\)_](https://trinket.io), whose privacy policy is [here](https://trinket.io/privacy) [_ \(https://trinket.io/privacy\)_](https://trinket.io/privacy). As of June 2019, there is no accessibility policy available for Trinket.

Required Computer Skills

To successfully complete this course, a student must be able to:

- Use the Canvas learning management system
- Download software and install it following instructions provided in this course
- Send email with and without attachments
- Digitize hand-drawn pictures on paper either using a scanner, smartphone, or digital camera
- Attach files or images to Canvas discussion posts
- Create ZIP archives (a.k.a zip files) from a folder on your computer containing files

Prerequisites

None

Co-requisites

INFO-C100 Informatics Foundations

Description

This course is an introduction to programming and databases, two basic means of creating, changing, and storing information on a computer. Computational thinking, basic programming, and basic debugging methods will be covered in a high-level language. Data modeling, schemas, SQL queries, and data-entry forms will also be emphasized.

Online Course Delivery

This course is 100% online with no face-to-face meetings. The expectation is that you will spend several (12 or more) hours per week completing the assigned reading, reviewing the notes, participating in discussions, and completing the assignments. If you do not, your course grade will surely reflect your level of effort.

Course Goals

After taking this course, students will be able to:

1. Write a program using a high level programming language
2. Describe program flow diagrammatically
3. Control program flow with branches and loops
4. Design and implement a relational database
5. Write basic queries in SQL
6. Write parameterized queries in SQL
7. Create forms for data entry
8. Describe the differences between tables and views
9. Create views and temporary tables using SQL in Microsoft Access

Program Goals

INFO-C112 satisfies the following joint online informatics degree program goals. Students will...

- Understand basic number systems on a computer (binary, octal, hex) (Program Goal A5, Introduced)
- Demonstrate basic problem solving (for example pseudocoding, flow charting) techniques (Program Goal B1, Developed)
- Understand low level representation of data (bit, byte, int, float, char, unicode, string, audio, video, image) (Program Goal B2, Introduced)
- Demonstrate basic programming skills (including: variables, conditionals, loops, sub programs, and parameter passing) (Program Goal B3, Reinforced)
- Demonstrate the ability to design, implement, test, and debug structured and object-oriented programs (Program Goal B5, Introduced)
- Demonstrate the ability to discuss and/or construct memory based structures and algorithms (Arrays (single, multidimensional), Lists (single, double, circular), stacks, queues, binary trees) (Program Goal B7, Introduced)
- Demonstrate the ability to identify elements of proper interface design, and ability to build user-centered interfaces. (HCI) (Program Goal C5, Introduced)
- Demonstrate proficiency of contemporary technological tools for communication and collaboration (Program Goal D1, Introduced)
- Effectively utilize oral, written, and visual communications of both qualitative and quantitative information within the context of a team (Program Goal D3, Introduced)

Campus Policies

You're probably used to seeing many policy statements on a syllabus. Faculty include these statements to ensure you understand course expectations so that you can succeed in your courses. At IU Southeast, we have placed all university policies on a single website easily accessed from every Canvas course site. Simply look at the left navigation bar and click on Succeed at IU Southeast. You can find links to sites with a great deal of useful information including

- How to avoid plagiarism and cheating
- Disability Services
- Student Engagement Roster (SER)
- Tutoring centers
- Canvas Guides
- Financial Aid
- Sexual Misconduct
- Counseling
- Writing Center and much more!

My expectation is that you review university policies carefully to ensure you understand the policy and possible consequences for violating the policy. Please contact me if you have any questions about any university policy.

Quizzes

There will be quizzes given covering the reading assignments or other course materials in the class. The quiz questions will mostly be multiple/choice or true/false, but some may require you to write or program short answers. Multiple choice, true/false, and fill-in-the-blank questions are autograded by Canvas. Short answer questions are graded by me after the due date. These questions are general 2-3 points rather than the single point for auto-graded questions. This increased point value reflects the fact that they are generally more time-consuming and/or challenging while also allowing me to give partial credit when grading. I generally provide written feedback and/or a solution for these questions. Canvas automatically provides the solution for the auto-graded ones. Quizzes may be completed after the due date with a 10% per day penalty. Portions of quizzes are automatically graded by Canvas, so you receive immediate feedback on that part of your grade. The rest of the quizzes are graded by me usually within 3 business days.

Labs, Group work, and Homework

The course will have weekly programming or database labs. A typical lab assignment will have a set of detailed directions students may follow in order to get practice with a particular aspect of programming or a database management system. In addition to your grade, I will provide detailed written feedback on your work to those of you that complete the assignment on time each week. Lab assignments handed in late will be subject to a 30% per day penalty until solutions are posted. **Late assignments will not be accepted after solutions are posted.** Lab assignments handed in on time are usually graded within 3 business days. Group assignments are discussion assignments. They need to be completed before the due date. If a discussion assignment requires you to create multiple posts in order to reply to other students, then you must complete all of them before the due date. **Other students in your group will be waiting on you to post, too, so they can complete the assignment. Be considerate of their time and complete these assignments early and conscientiously.** Late discussion assignment submissions will receive either a zero or a 30% per day late penalty at my discretion. The lowest grade in this assignment group will be automatically dropped by Canvas when calculating your course grade.

Tests

There will be two cumulative assignments in this course serving as a test grade. The programming portion of the course will conclude with a project (slightly larger/more complicated program than a homework assignment) completed individually. The database portion will conclude with a cumulative test. The project will be subject to a 10% per day late penalty. **Tests submitted after the deadline for the database test will receive a zero since the database test marks the end of the course.** Tests are usually graded within 1 business day.

Letter Grades

For each of the three assignment categories described above, a category average will be computed by weighting each assignment in that category equally using the percentage of points scored on that assignment as a grade "out of 100 points". Your overall numerical course grade will be computed from those category averages using the weightings shown by Canvas on this page either to the right or the bottom of the page depending on your browser and/or device screen size. Letter grades will be assigned using at least a 10-point scale. That is, if you get 90% of the points in the course, you will receive at worst an A-. Within a given letter-grade range, there will be pluses and minuses given as per the table below. Your grade will be determined using the weighting shown by Canvas with this syllabus and in the gradebook. I reserve the right to increase the grading scale for your benefit.

Letter Grades

Points	Grade
≥ 98	A+
$94 \leq \text{grade} < 98$	A
$90 \leq \text{grade} < 94$	A-
$88 \leq \text{grade} < 90$	B+
$84 \leq \text{grade} < 88$	B
$80 \leq \text{grade} < 84$	B-
$78 \leq \text{grade} < 80$	C+
$74 \leq \text{grade} < 78$	C
$70 \leq \text{grade} < 74$	C-
$60 \leq \text{grade} < 70$	D
$\text{grade} < 60$	F

Communication Policy and Netiquette

The main way you will interact with other students and with me during this course is through your writing in discussion forums, messages, or email. In this online course, writing is the same as speaking to others in the classroom, so do not write anything you would not be comfortable saying to another student or to me. In

every communication in this course, be sure to respect the individual(s) you are communicating with. In small group work in particular, you will share your work for that assignment with other students. As you respond to each others work, please be polite, do not insult or belittle others, and provide constructive criticism rather than harsh words. Please avoid offensive language or ideas and concentrate on the course material and goals of the assignment.

Additional Accommodations

If you have specific physical, psychological or learning disabilities and require accommodations, please let me at the start of the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Coordinator of Disability Services on your campus. Additional information about the Office of Services for Students with Disabilities may be obtained at

<http://www.ius.edu/disability-services> [.\(http://www.ius.edu/disability-services\)](http://www.ius.edu/disability-services)

Course Summary:

Date	Details	
Tue Aug 27, 2019	 <u>Introduce Yourself to the Class</u> (https://iu.instructure.com/courses/1850175/assignments/9471405)	due by 12pm
	 <u>Course Orientation Quiz</u> (https://iu.instructure.com/courses/1850175/assignments/9471389)	due by 5pm
Fri Aug 30, 2019	 <u>Java Hello World Lab (Chapter 1)</u> (https://iu.instructure.com/courses/1850175/assignments/9471457)	due by 5pm
	 <u>Think Java Chap. 1</u> (https://iu.instructure.com/courses/1850175/assignments/9471398)	due by 5pm
Mon Sep 2, 2019	 <u>Java Types and Operators Lab (Chapter 2)</u> (https://iu.instructure.com/courses/1850175/assignments/9471500)	due by 10am
	 <u>Think Java Chap. 2</u> (https://iu.instructure.com/courses/1850175/assignments/9471391)	due by 10am
Fri Sep 6, 2019	 <u>Chap. 3 Group work: Formatted I/O</u> (https://iu.instructure.com/courses/1850175/assignments/9471403)	due by 10am
Mon Sep 9, 2019	 <u>Java IO Lab (Chapter 3)</u> (https://iu.instructure.com/courses/1850175/assignments/9471468)	due by 10am
	 <u>Think Java Chap. 3</u> (https://iu.instructure.com/courses/1850175/assignments/9471397)	due by 10am

Date	Details	
Mon Sep 16, 2019	 Group Discussion Assignment: Draw the Call Stack https://iu.instructure.com/courses/1850175/assignments/9471406	due by 10am
	 Java Method Lab (Chapter 4) https://iu.instructure.com/courses/1850175/assignments/9471489	due by 10am
	 Think Java Chap. 4 https://iu.instructure.com/courses/1850175/assignments/9471390	due by 10am
Mon Sep 23, 2019	 Java Branching Lab (Chapter 5) https://iu.instructure.com/courses/1850175/assignments/9471436	due by 10am
	 Think Java Chap. 5 https://iu.instructure.com/courses/1850175/assignments/9471396	due by 10am
Mon Sep 30, 2019	 Java Function Lab (Chapter 6) https://iu.instructure.com/courses/1850175/assignments/9471455	due by 10am
	 Think Java Chapter 6 https://iu.instructure.com/courses/1850175/assignments/9471388	due by 10am
Thu Oct 3, 2019	 Discussion: Pseudocode and Flowcharting https://iu.instructure.com/courses/1850175/assignments/9471404	due by 5pm
Mon Oct 7, 2019	 Think Java Chapter 7 https://iu.instructure.com/courses/1850175/assignments/9471399	due by 10am
	 Java Iteration Lab (Chapter 7) https://iu.instructure.com/courses/1850175/assignments/9471474	due by 10am
Tue Oct 8, 2019	 Java Iteration Programming Assignment (Chapter 7) https://iu.instructure.com/courses/1850175/assignments/9471479	due by 10am
	 Java Array Lab (Chapter 8) https://iu.instructure.com/courses/1850175/assignments/9471426	due by 10am
Mon Oct 14, 2019	 Java String Lab (Chapter 9) https://iu.instructure.com/courses/1850175/assignments/9471495	due by 10am
	 Think Java Chapter 9 https://iu.instructure.com/courses/1850175/assignments/9471402	due by 10am
Mon Oct 28, 2019	 Java Class Lab (Chapters 10-11) https://iu.instructure.com/courses/1850175/assignments/9471442	due by 10am
	 Think Java Chapters 10 & 11 https://iu.instructure.com/courses/1850175/assignments/9471401	due by 10am

Date	Details	
Mon Nov 4, 2019	 <u>Flowchart for Programming Project</u> https://iu.instructure.com/courses/1850175/assignments/9471425	due by 10am
	 <u>ERD Lab (SQL Chapter 1)</u> https://iu.instructure.com/courses/1850175/assignments/9471415	due by 10am
Mon Nov 11, 2019	 <u>Microsoft Access Hello World</u> https://iu.instructure.com/courses/1850175/assignments/9471505	due by 10am
	 <u>SQL Chapter 1</u> https://iu.instructure.com/courses/1850175/assignments/9471387	due by 10am
	 <u>Access Query By Example Lab - (SQL Chap. 2)</u> https://iu.instructure.com/courses/1850175/assignments/9471407	due by 10am
Mon Nov 18, 2019	 <u>Programming Project</u> https://iu.instructure.com/courses/1850175/assignments/9471513	due by 10am
	 <u>SQL Chapters 2 & 3</u> https://iu.instructure.com/courses/1850175/assignments/9471386	due by 10am
	 <u>SQL DDL & Access Database Creation</u> https://iu.instructure.com/courses/1850175/assignments/9471529	due by 10am
Mon Nov 25, 2019	 <u>SELECT FROM WHERE queries - SQL Chaps 4 & 5</u> https://iu.instructure.com/courses/1850175/assignments/9471519	due by 10am
	 <u>SQL Chapters 4 and 5</u> https://iu.instructure.com/courses/1850175/assignments/9471394	due by 10am
Mon Dec 2, 2019	 <u>Aggregation and INNER JOIN queries - SQL Chapters 6 & 8</u> https://iu.instructure.com/courses/1850175/assignments/9471408	due by 10am
	 <u>SQL Chapters 6 & 8</u> https://iu.instructure.com/courses/1850175/assignments/9471395	due by 10am
Wed Dec 11, 2019	 <u>Parameter Queries Lab (SQL Chapter 13)</u> https://iu.instructure.com/courses/1850175/assignments/9471512	due by 10am
	 <u>SQL Chaps 10 & 12 - Views and temporary tables</u> https://iu.instructure.com/courses/1850175/assignments/9471525	due by 10am
	 <u>SQL Chapter 13</u> https://iu.instructure.com/courses/1850175/assignments/9471392	due by 10am
	 <u>SQL Chapters 10 & 12</u> https://iu.instructure.com/courses/1850175/assignments/9471400	due by 10am
Mon Dec 16, 2019	 <u>Database Test</u> https://iu.instructure.com/courses/1850175/assignments/9471393	due by 5pm