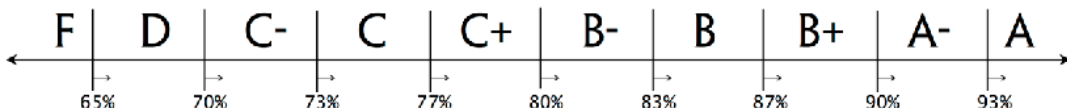# Language Study: Erlang

CMPT 333 • Fall 2023

Background

When and where

Mondays 11AM—12:15PM and Wednesdays 9:30AM—10:45AM in HC 1021
Labs online and Thursdays 9:30AM—10:45AM.

Suggested Text

Programming Erlang by Joe Armstrong, 2nd edition - ISBN: 978-1-937785-53-6
https://pragprog.com/titles/jaerlang2/programming-erlang-2nd-edition/

Web

https://www.labouseur.com/courses/erlang

Instructor

Alan G. Labouseur
Hancock 3**007**
(Office hours are posted.)

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845-440-1102 *home office phone*

Grading

Letter Grades

F	D	C-	C	C+	B-	B	B+	A-	A
	65%	70%	73%	77%	80%	83%	87%	90%	93%

You can earn up to 1000 points over the course of the semester, broken down as follows:

Labs 0, 1, 2, 3, 4	30.0%	300 points (5 at 60 points each)	[1, 2]
Mid-term Exam	25.0%	250 points	[1, 2]
Final Exam	25.0%	250 points	[1, 2]
Final Project	15.0%	150 points	[1, 2]
Attendance and Participation	2.5%	25 points for quality and quantity	[1]
Laziness and Whining	2.5%	25 points for not (lazy or whining)	[1]

Objectives and Assessment

Assessment methods include assignments, quizzes, exams, discussions, presentations, peer review, and projects.

[References] refer to Department of Computing Technology Goals available at https://www.labouseur.com/courses/goals.pdf

In this course, I hope that you will learn to **think like a computer scientist**, and…
- gain and demonstrate an understanding of the core concepts in parallel and distributed programming [1, 2,5];
- gain and demonstrate an understanding of the techniques for developing, analyzing, and deploying functional programs and distributed programs [1, 2];
- gain and demonstrate an understanding that the chasm between programs that work once and programs that work every time is ridiculously huge [1, 2];
- achieve the ability to construct parallelizable functions that work together.
- learn that developing functional programs is only half the battle, debugging and testing are critical skills for a talented professional [1, 2];
- enhance your continuing education skills. Capable problem solvers never stop learning. You will get practice in finding answers for yourself. Additionally, preparation and presentation of the projects, as well as participation in class discussions and assignments, requires at least a little research, so there's that. [1, 2]

Finally, some internship and job interview questions can be based on this material. I want you to be so awesome that the company hires you on the spot and sends you home with a Brinks truck full of cash and video games, including *Star Trek: Resurgence II.*

Language Study: Erlang

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─ Schedule ────────────────────────

#	Week		Due Wed	Book	Topics and Activities	
	Mon	**Wed**				
0	28-Aug	30-Aug	Lab 0: LaTeX Limericks	1, 2.1, 2.2-3	Introduction, Expectations, and Goals / our book and website / Installing Erlang The shell / Interactive math / Vars / Processes, Modules, and Compilation	
1	4-Sep	6-Sep	—	3	*No class meeting on Monday — Labor Day* Single-assignment variables / Numbers / Atoms / Tuples / Lists / Strings	
2	11-Sep	13-Sep	Lab 1: History and Environment	3 4	Functions / More Pattern Matching / Guards / Recursion with Factorial	
3	18-Sep	20-Sep	—	3 4	Tests / Anonymous and named **fun**ctions / map Set Operations / Sets vs. Lists	
4	25-Sep	27-Sep	—	3, 4 4	Review and Revisit Recursion and List Processing Expressions for case and if / getting input / a simple "game loop"	
5	2-Oct	4-Oct	Lab 2: Recursive Functions	6	Error handling and Exception processing Review for the Mid-term exam	
6	9-Oct	11-Oct	—	—	**Mid-term Exam** parts 1 and 2, in our classroom One-page study sheet permitted. Some restrictions apply.	
7	16-Oct	18-Oct	—	1, 11	Thoughts on the Mid-term Exam and Project 2 / Real-world Concurrency *No class meeting on Wednesday — Mid-term Break*	
8	23-Oct	25-Oct	—	12 9	Concurrent programing and lightweight processes A little bit about types	
9	30-Oct	1-Nov	Lab 3: Adventure Game v1	12	*Catch-up or take-a-break class* More about concurrent programing and Distributed Systems	
A	6-Nov	8-Nov	—	12 14	Thoughts on Project 3 / Concurrent and parallel programing Distributed Programming	
B	13-Nov	15-Nov	—	14	Distributed Programming	
C	20-Nov	22-Nov	Lab 4: TTT client/server	14	Distributed Programming / (Lab 4 still due on the 22nd.) *No class meeting on Wednesday — Thanksgiving break*	
D	27-Nov	29-Nov	—	14, 22 23, 26	Thoughts on Project 4 / Distributed Programming / Programming multi-core CPUs / "Let it Crash" error handling	
E	4-Dec	6-Dec	—	—	**Final Exam** parts 1 and 2, in our classroom One-page study sheet permitted. Some restrictions apply.	
F	11-Dec @ 8am		Final Project	—	Show off and demo your final project in Hancock 2021 at 8AM	