

# 252-0029-00L Parallel Programming Summary and Lecture Notes

Yael Fassbind

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Disclaimer: These are just my notes during the semester.  
No guarantee for completeness and correctness

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# Overview

## Parallel Programming

- Java recap
- parallelism in Java (Threads)

## Parallelism

- understanding and detecting parallelism
- intro to PC architectures
- formalizing parallelism
- programming models for parallelism

## Concurrency

- shared data
- race conditions
- locks, semaphores, etc.
- lock-free programming
- communication across tasks and processes

## Parallel Algorithms

- useful and common algorithms
- datastructures
- storing and searching

# **1 Week 1**

## **1.1 Goals**

- Learn to write parallel programs in practice
- Understand underlying fundamental concepts

## **1.2 Vorlesung 1**

- Mutual Exclusion - Decker's Algorithms
- Producer-Consumer
- Readers-Writer