

Topic	Hours
▼ CS 240: Programming Paradigms and Patterns	48.00
▼ Languages: syntax, evaluation, builtins & libs	6.00
• Haskell (ghc)	3.00
• Common Lisp (sbcl)	3.00
▼ Data modeling	8.25
• Type systems and Static verification	1.50
• Pattern matching and Destructuring	0.75
• Polymorphism and Parameterized types	1.50
• Symbolic computation	1.50
• Data driven program design	3.00
▼ Managing Mutability and Side effects	3.75
• Pure functions and Immutable/Persistent data structures	1.50
• Scope and Binding: global, dynamic, lexical	0.75
• Monads and Chaining	1.50
▼ Functional programming patterns	10.50
• First-class functions and Closures	2.00
• Higher order functions	3.00
• Partial application and Currying	1.50
• Strict vs. Lazy evaluation	1.50
• Tail recursion, Continuations, and CPS	1.50
• Memoization	1.00
▼ Concurrent programming	4.50
• Multithreading	1.50
• Thread pools & Work queues	1.50
• Locks and Condition variables	1.50
▼ Event-driven / Asynchronous programming	4.50
• Event loops and Callbacks	1.50
• Futures	1.50

Topic	Hours
<ul style="list-style-type: none"> <li>• Serial and Parallel control flow</li> </ul>	1.50
▼ Metaprogramming	4.50
<ul style="list-style-type: none"> <li>• Domain specific languages</li> </ul>	1.50
<ul style="list-style-type: none"> <li>• Macros and Metalinguistic abstraction</li> </ul>	3.00
• Anti-patterns: identification and alternatives	1.50
▼ Practicum	4.50
<ul style="list-style-type: none"> <li>• The REPL and incremental development</li> </ul>	0.50
<ul style="list-style-type: none"> <li>• Regular expressions</li> </ul>	1.50
<ul style="list-style-type: none"> <li>• CLOS (generic functions and multimethods)</li> </ul>	1.50
<ul style="list-style-type: none"> <li>• Distributed version control with Git</li> </ul>	0.50
<ul style="list-style-type: none"> <li>• Profiling and Timing</li> </ul>	0.50