



Duke Electrical and Computer Engineering

Mastery Learning System Infrastructure for ECE 551

Drew Hilton

Assistant Professor of the Practice

Electrical and Computer Engineering Department

Pratt School of Engineering

Duke University

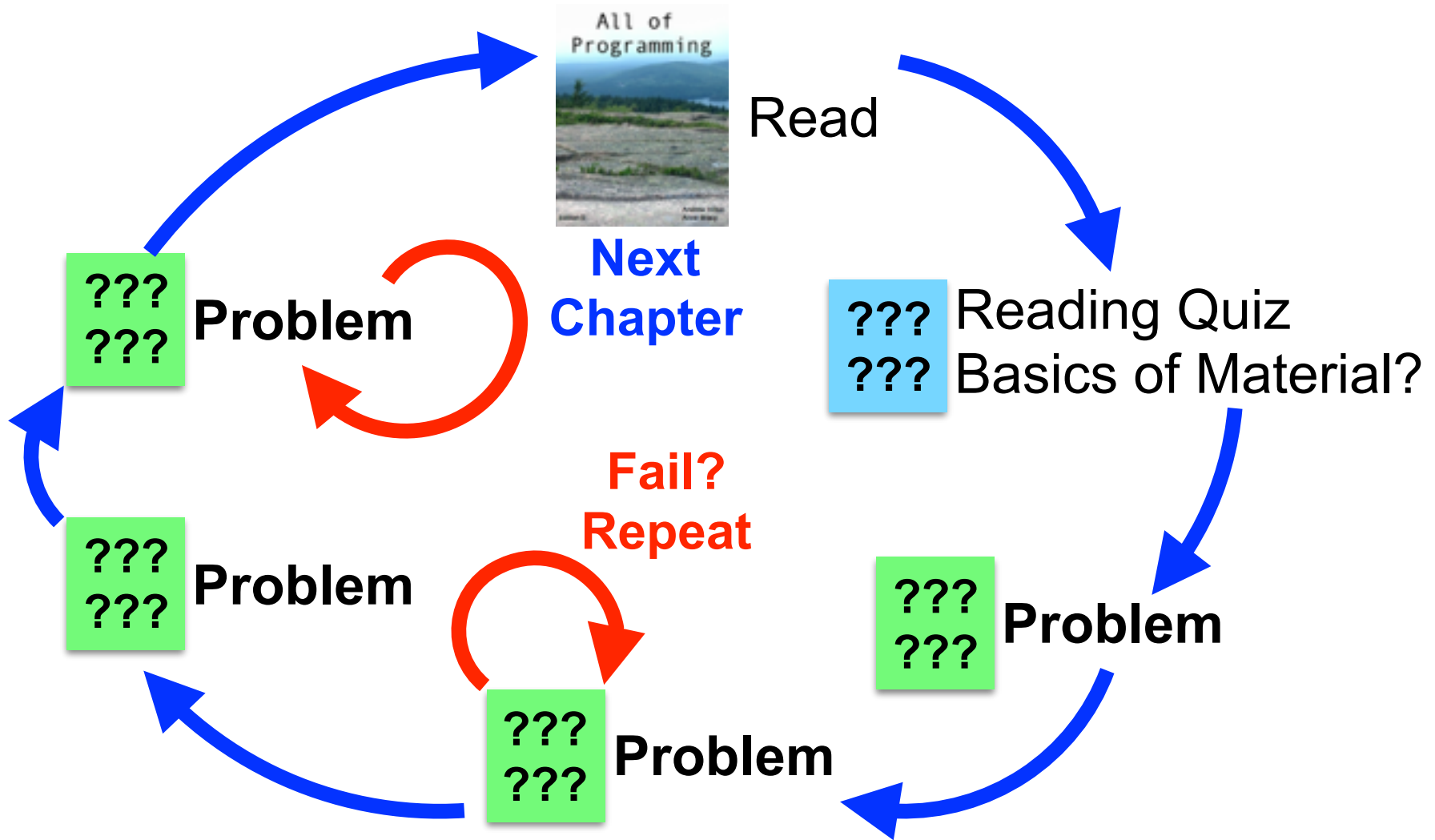


ECE 551: Programming

- ECE 551: Hardcore intro programming
 - 0->competent programmer in 1 semester
- Programming: learn by doing
 - Natural choice for flipped classroom
- Concept build on each other
 - Mastery learning
 - "Formative" assignments
 - (also evaluative assignments)



551 Assignment Cycle



Platform:

- Grade Assignments
 - Automatic grading
 - Basically instant
 - Also supports evaluative assignments:
 - Hard deadlines
 - Grade after deadline
- Release Assignments:
 - Pass dependencies-> get next assignment
 - Supports release after date also



Tokens: Rate Limited Grading

- Do not want: tweak and grade and tweak and grade...
 - Wrong? Go learn material, understand, fix
- Discourage behavior with token system
 - Grading costs tokens (e.g., 10/ grading)
 - Tokens refresh periodically (e.g., 30 every 12 hours)
- Different token types (different kinds of assignments)
 - Different pools of tokens
 - Different refresh rates
- Token costs scale up after soft deadline
 - Encourage staying on track/timely completion
 - Scaling set by token type

