CSCE 463/612
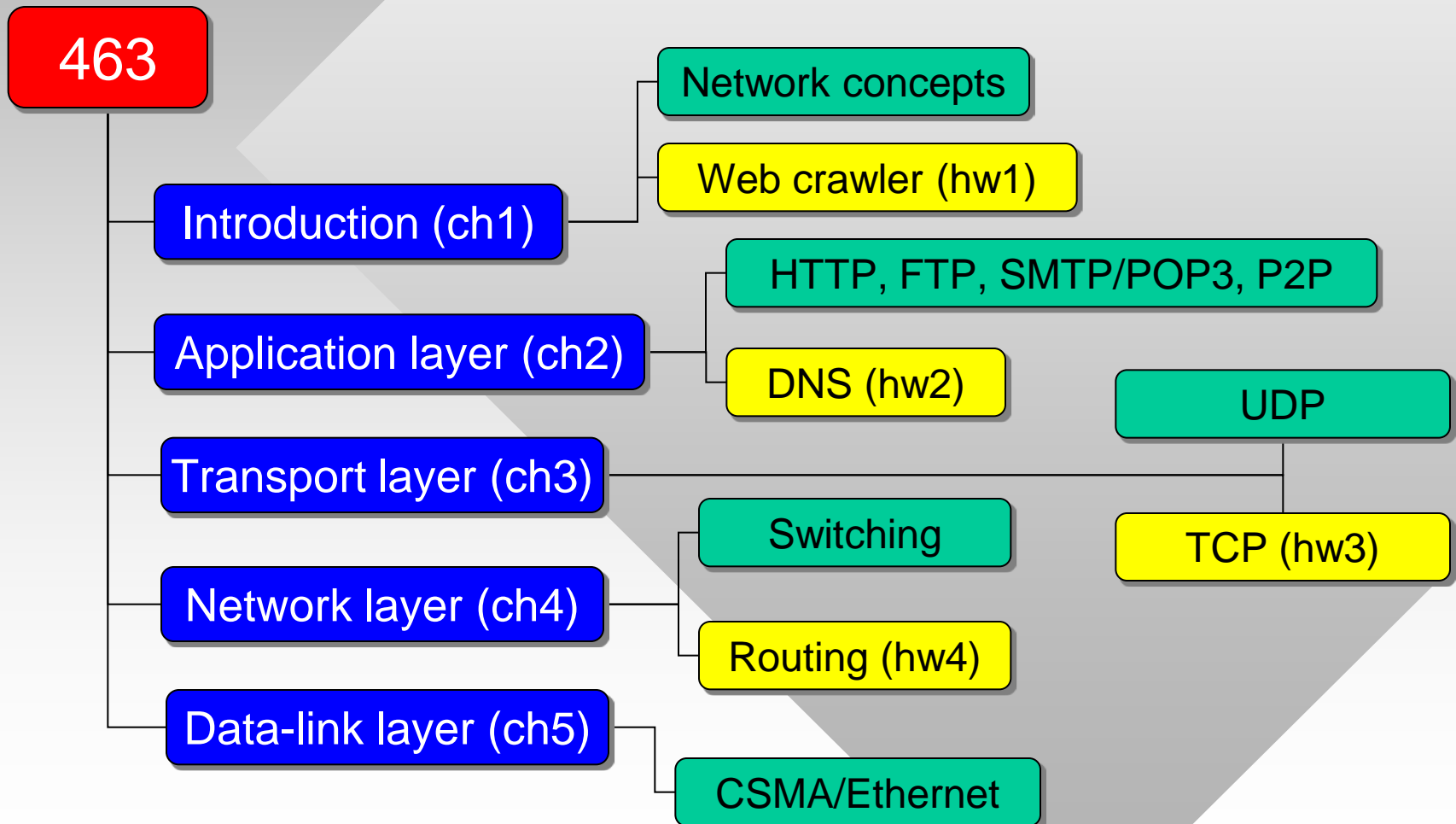# Networks and Distributed Processing
Fall 2020

Preliminaries

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Texas A&M University

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Agenda

- Roadmap
- Syllabus
- Academic integrity
- Homework expectations
- Visual Studio
- Wrap-up

Course Roadmap

463

- Introduction (ch1)
  - Network concepts
  - Web crawler (hw1)
- Application layer (ch2)
  - HTTP, FTP, SMTP/POP3, P2P
  - DNS (hw2)
- Transport layer (ch3)
  - UDP
  - TCP (hw3)
- Network layer (ch4)
  - Switching
  - Routing (hw4)
- Data-link layer (ch5)
  - CSMA/Ethernet

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Syllabus

- Instructor: Dmitri Loguinov
  - Office hours: TR 6-7pm in Zoom
- Main text:
  - J.F. Kurose and K.W. Ross, "Computer Networking: A Top-Down Approach," Addison-Wesley, 7th edition, 2016
- Website: http://irl.cse.tamu.edu/courses/463
  - Slides and future test dates
  - Homework assignments
  - Links to useful material
- Piazza: http://piazza.com/tamu/fall2020/csce463

Syllabus 2

- Must use Visual Studio 2019 + Win 10.0.19041 SDK
  - Download Community Edition for free from Microsoft https://visualstudio.microsoft.com/vs/
  - When installing, only need "Desktop Development with C++" in the set of options
  - Can use Microsoft APIs or C++11 threads/synchronization
- Prerequisites:
  - Competent C/C++ and debugging skills
  - CSCE 313: Computer Systems
    - Multi-threading and synchronization
  - CSCE 221: Data Structures and Algorithms
    - Queues, sets, hash tables, trees
- Expect heavy coding

Syllabus 3

- Homework (40% of final grade):
  - 4 programming assignments
  - Each explores a different aspect of computer networks
- Exams (60% of final grade):
  - Closed-book, no cheat-sheets
  - 3 quizzes (15% of final grade):
    - Problems from each chapter
  - 3 midterms (45% of final grade):
    - Lecture/homework topics
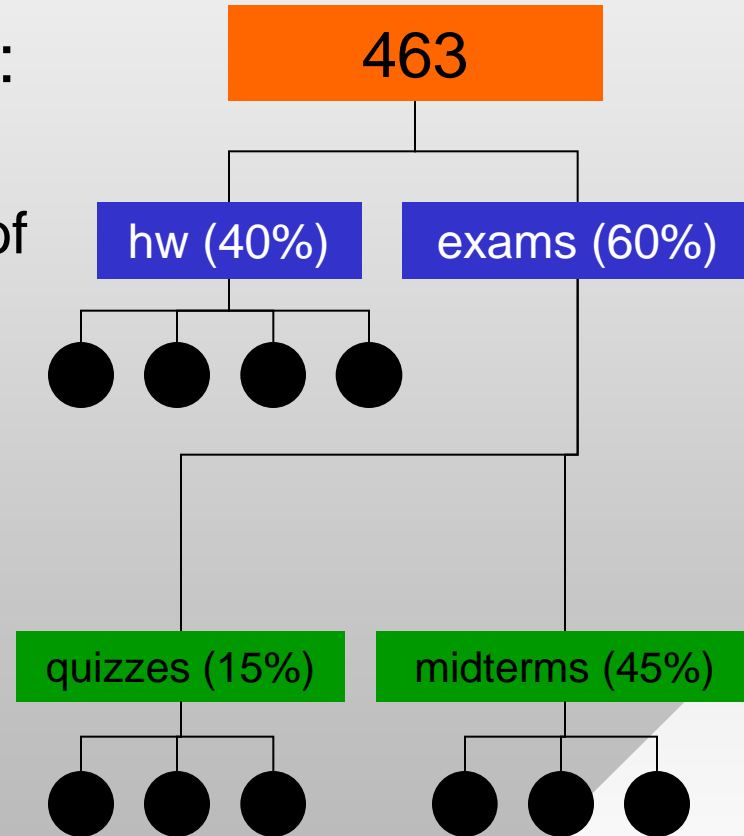
Syllabus 4

- Grade distribution
  - 90-100% (A), 80-89% (B), 70-79% (C), 60-69% (D), 0-59% (F)
- You cannot pass the class without doing homework
- <u>Student type A</u>: emails for every simple issue
  - How to create a project, start a program, linker errors
  - Instructor ends up googling and sending results back
- <u>Student type B</u>: never asks for help
  - Spends hours or days being stuck on the same problem
- Best route lies somewhere in between
  - Others might have experienced similar problems, asked about them on stackoverflow
  - Perform initial investigation, obtain insight into the issue

Syllabus 5

- If nothing useful emerges, ask for help
  - Through piazza (general concepts) or email (code-specific)
  - During class, office hours (bring a laptop)
- If problem is solved, answer your own question
  - Help others with their questions on piazza
- If emailing
  - Provide a clear description of the problem, where it occurs, and what you have done to debug it
- Read my tutorial on pointers, debugging, APIs
  - http://irl.cs.tamu.edu/courses/463/systems%20notes.pdf
  - Call stack, breakpoints, immediate/watch/thread window, common debugging techniques, stepping thru code

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Academic Integrity

- No teamwork
  - Discussion with other students is fine, but all submissions must be original and yours

- Cannot use external sources unless explicitly cleared with the instructor
  - If such usage is allowed, acknowledge where the code came from; MSDN examples and 463 sample code are automatically allowed and do not require acknowledgment

- For more details, see Academic Rules, Section 20

- All parties involved in cheating will be penalized equally
  - **F* in the class or expulsion from university**

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Homework

- Homework:
  - Due at 10am, 20% penalty per day (no points after 5 days)
  - Delays for personal reasons must be requested in advance
- Soft copy:
  - Add a comment to the top of each cpp/h file with your full name, class, and semester
  - Create a zip containing only *.sln, *.cpp, *.h, *.lib, *.vc*proj*, delete everything else
  - *Preserve the original directory structure inside the zip*
  - Upload to canvas.tamu.edu
  - Submitted code should compile as is, release & debug

Homework 2

- Windows machines for this class
  - You can use your laptop/desktop for most tasks
  - But on some of the benchmarks, Suddenlink and dorms are likely to block your connections
- Alternatives
  - Use Azure for students ($100 credit per year)
  - Visit https://azure.microsoft.com/en-us/free/students/
  - Allows you to spin up a virtual machine (Server 2016 or 2019) in the cloud, run your code over Remote Desktop
- Department Windows servers
  - These are no longer available for the whole class, but we might be able to use them in isolated cases; talk to the instructor if Azure is not a suitable solution for you

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Wrap-up

- Homework #1 is due in three parts:
  - Part 1 (8/27 next Thursday!): load a single page
  - Part 2 (9/3): crawl a list of pages with one thread
  - Part 3 (9/17): multi-threaded crawler
- Suggestions:
  - Read my programming tutorial and hw1p1
  - Formulate questions about them
  - Experiment with VS 2019