

# Introduction to Computer Networks Online

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EE NTU

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# Vital Information

- Course : 電腦網路導論
- Taught by : 黃寶儀
- Class No. : EE4020
- Class ID. : 901E31110
- Credit : 3 units

# Special Course

- Sponsored by NTU/MOE
- Designed to promote
  - Interaction (not just student-instructor)
  - Independent/team problem solving
  - Tolerance to different perspectives (justify your own solutions/opinions)
- Space limited
  - due to course nature and resource constraint

# 100% Online

- Lectures and Quizzes on [YouTube](#)
- Quizzes and Q&A on [Discord](#)
- Call-ins on [Google Meet](#)
- Exams on [Google Forms](#) and [Google Meet](#)

# 99% in English

- All Communication in English, including
  - Lectures
  - Homework
  - Exams
  - In/off-class interaction
- One slight exception
  - You may fall back to Chinese during the live sessions if you are really short of words

# Be Aware

- Credits are granted only when the English is **comprehensible**
  - Keep your words/sentences simple
  - The point is to communicate

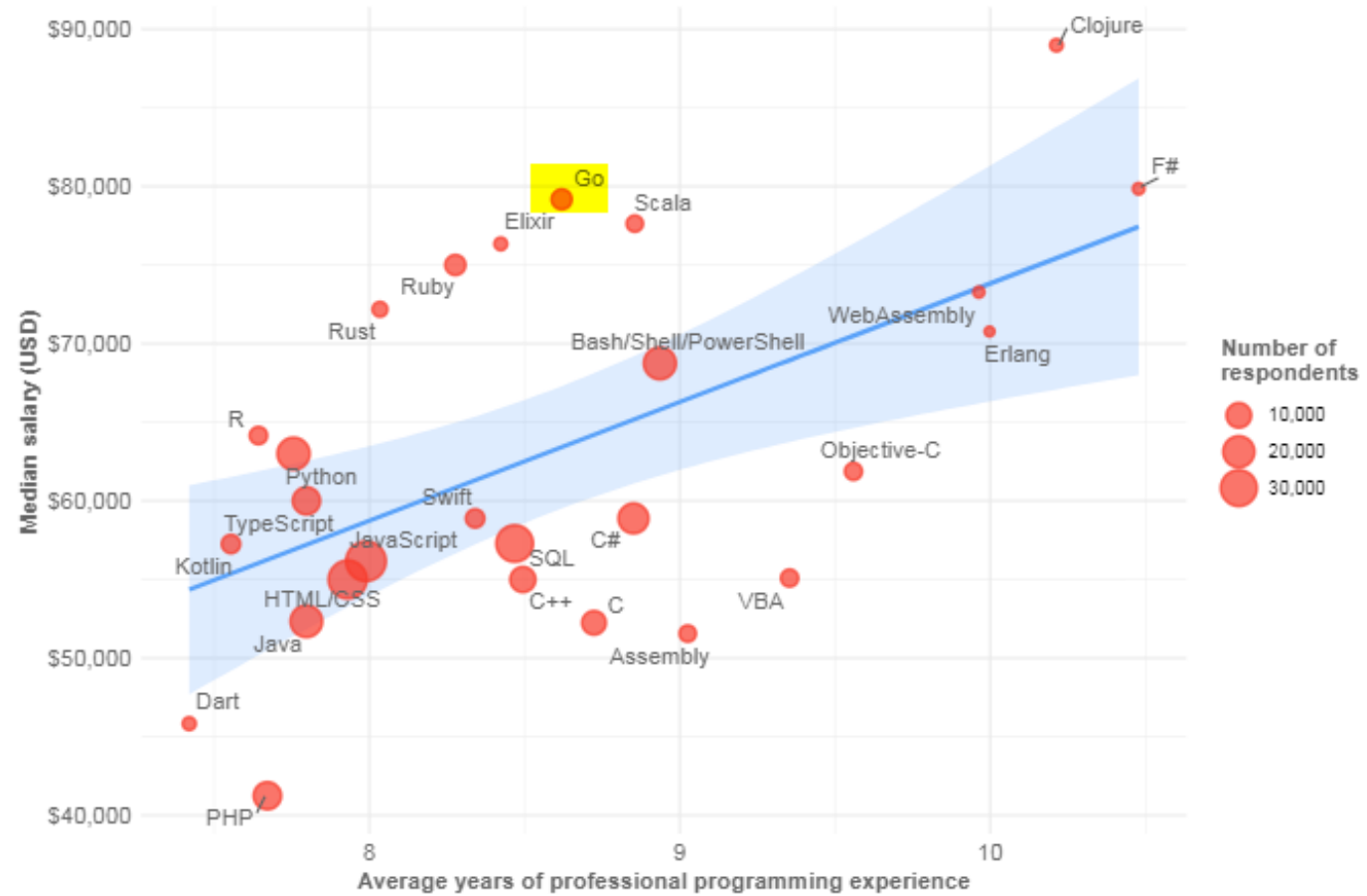
# Why Go?

Back-end (Server-side) table in most popular websites

Websites	C#	C	C++	D	Erlang	Go	Hack	Java	JavaScript	Perl	PHP	Python	Ruby	Scala	Xhp
Google.com	No	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	Yes	No	No	No
YouTube.com	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No
Facebook.com	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes
Yahoo	No	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Amazon.com	No	No	Yes	No	No	No	No	Yes	No	Yes	No	No	No	No	No
Wikipedia.org	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No
Twitter.com	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	Yes	No
Bing	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No
eBay.com	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No
MSN.com	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Linkedin.com	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No
Pinterest	No	No	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No
WordPress.com	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No



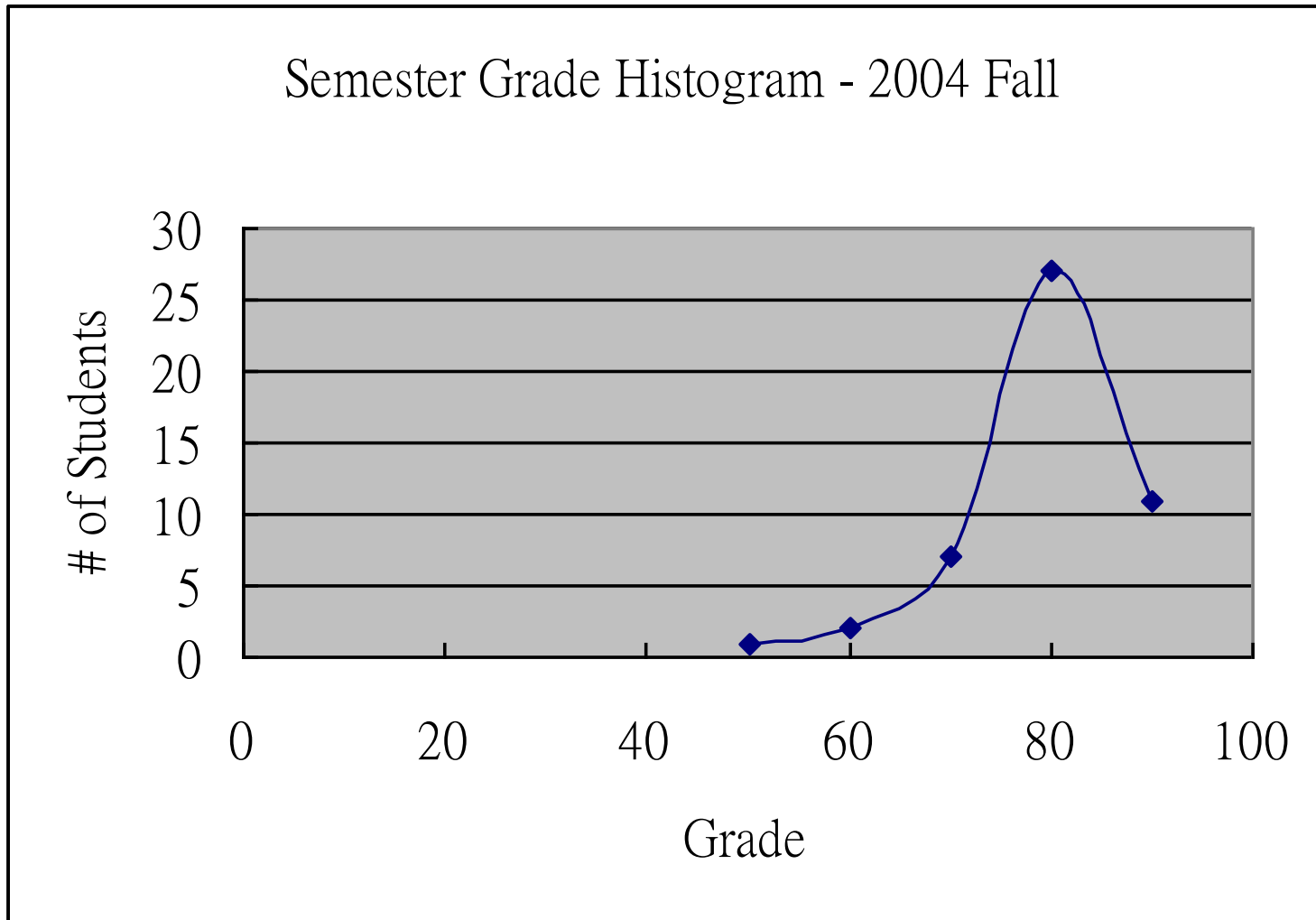
## Salary and Experience by Language

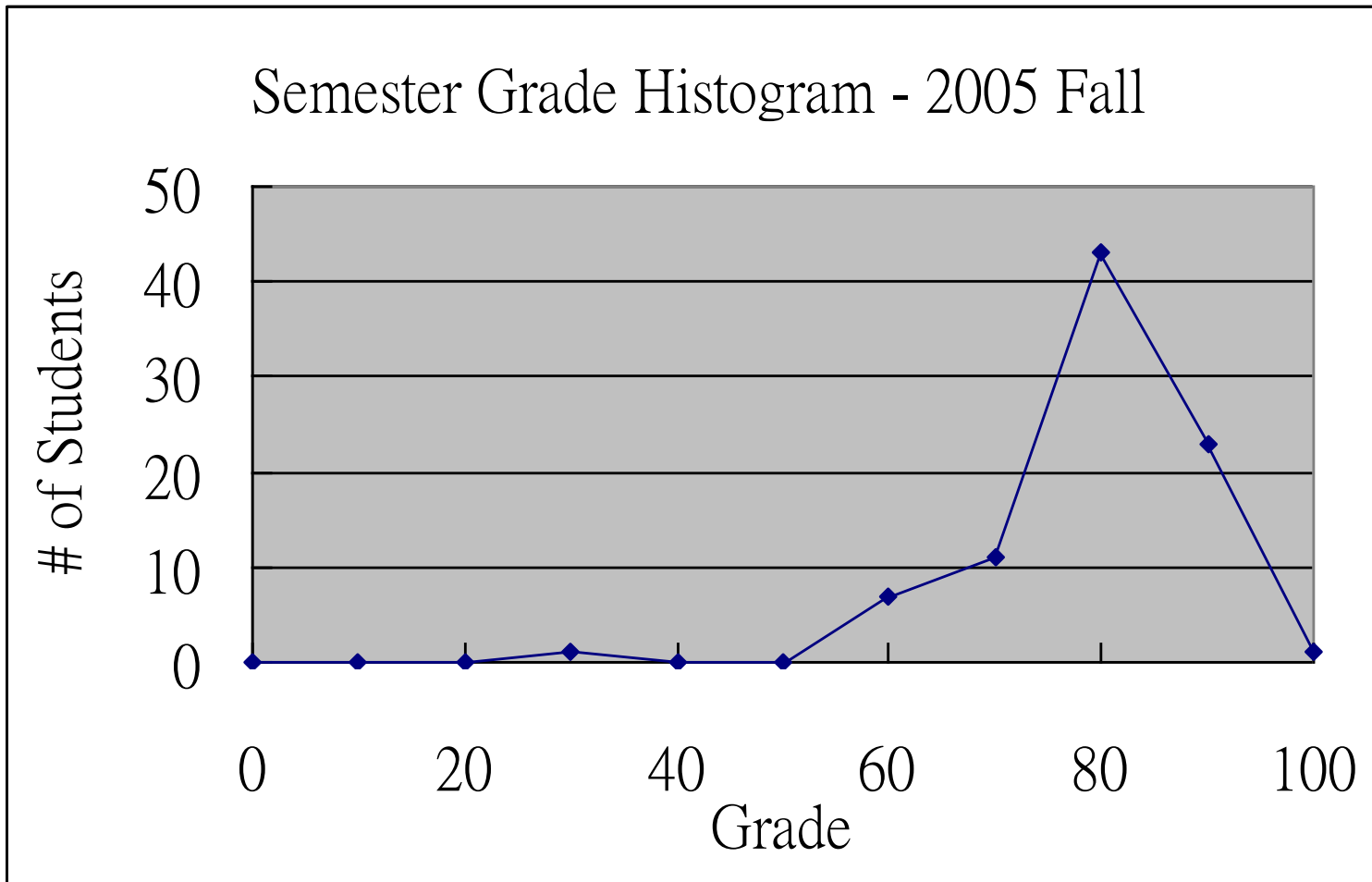


# Open Source!

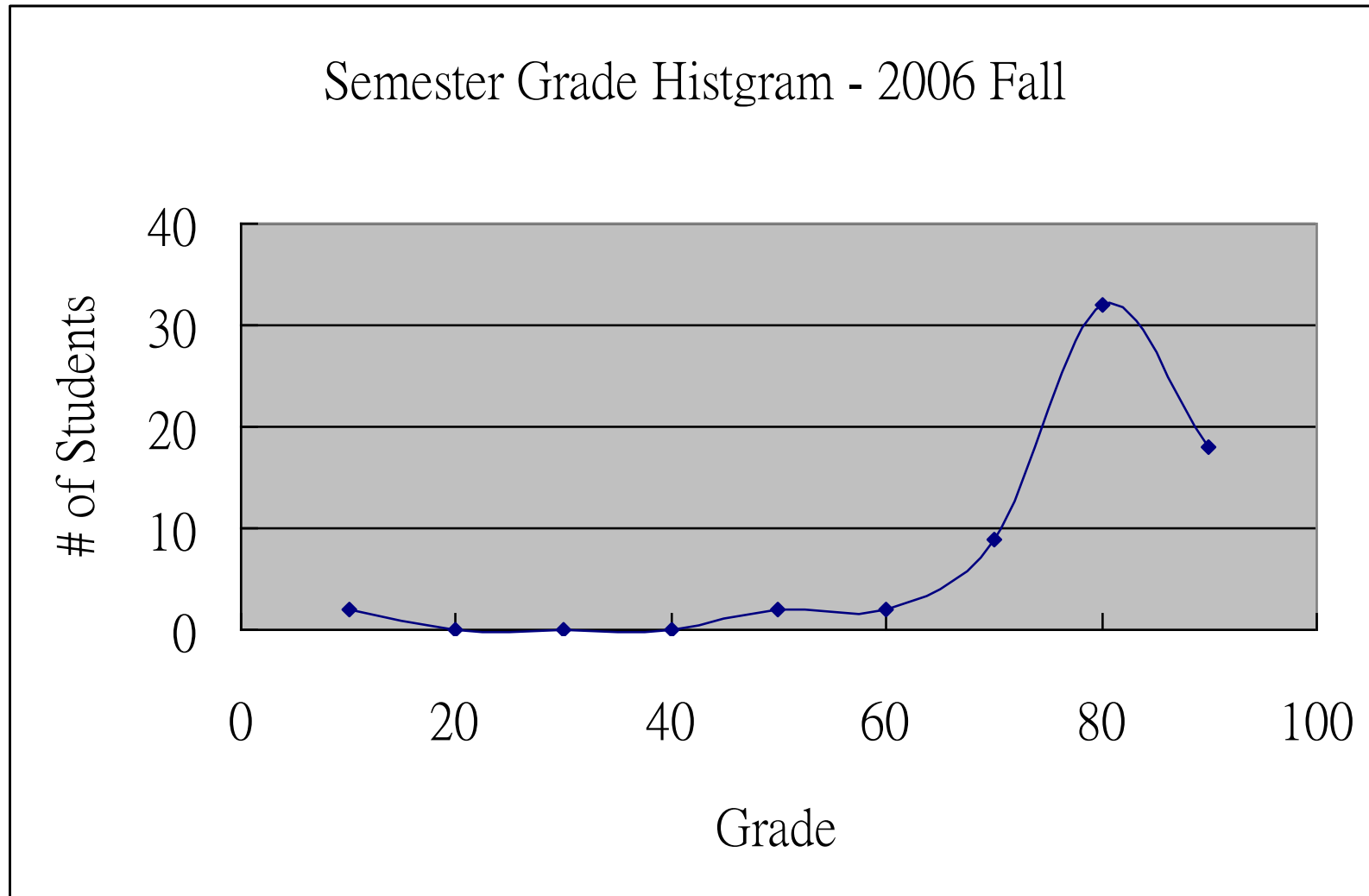
(polly's bias)

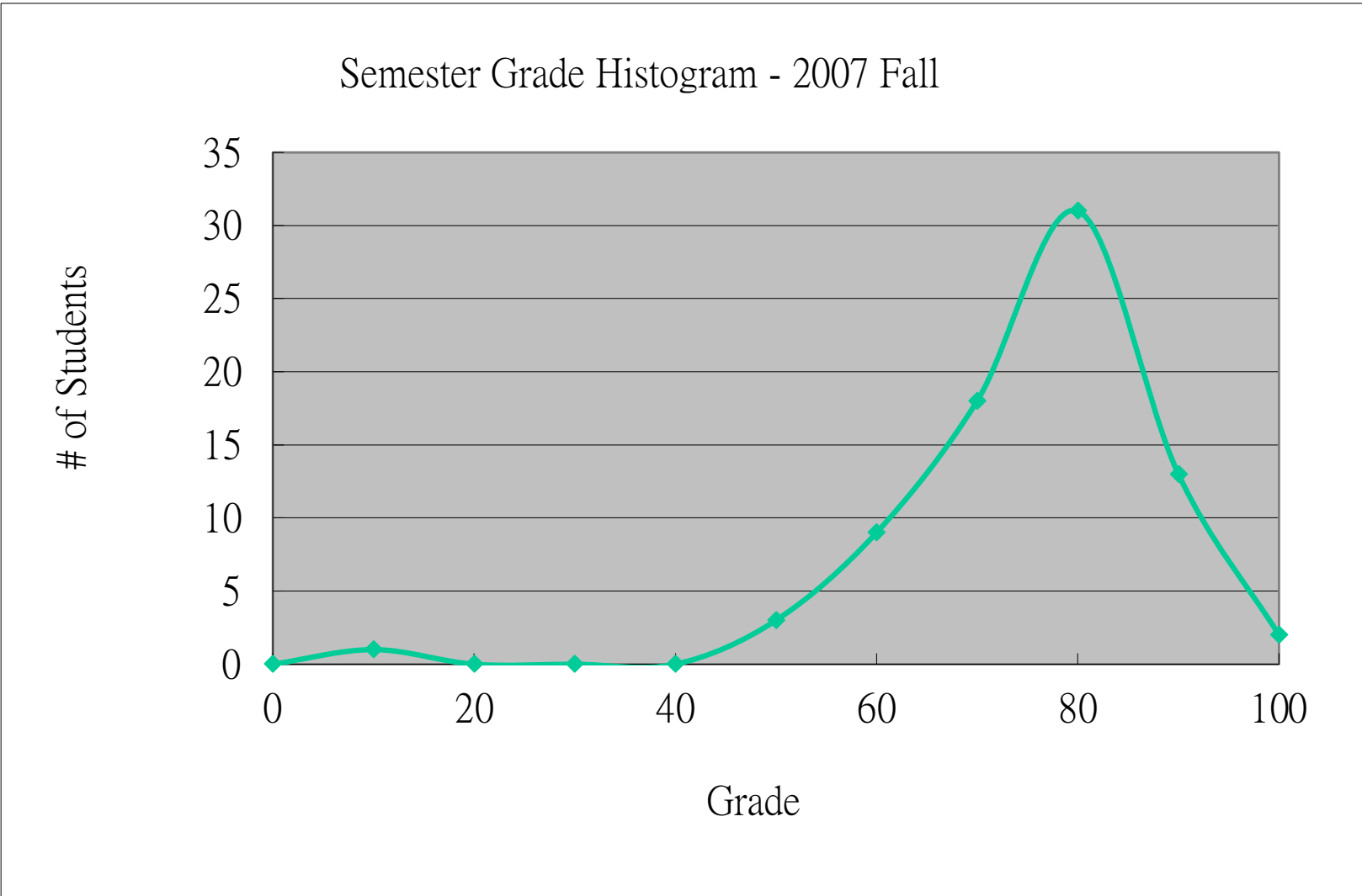
Polly is not nice!



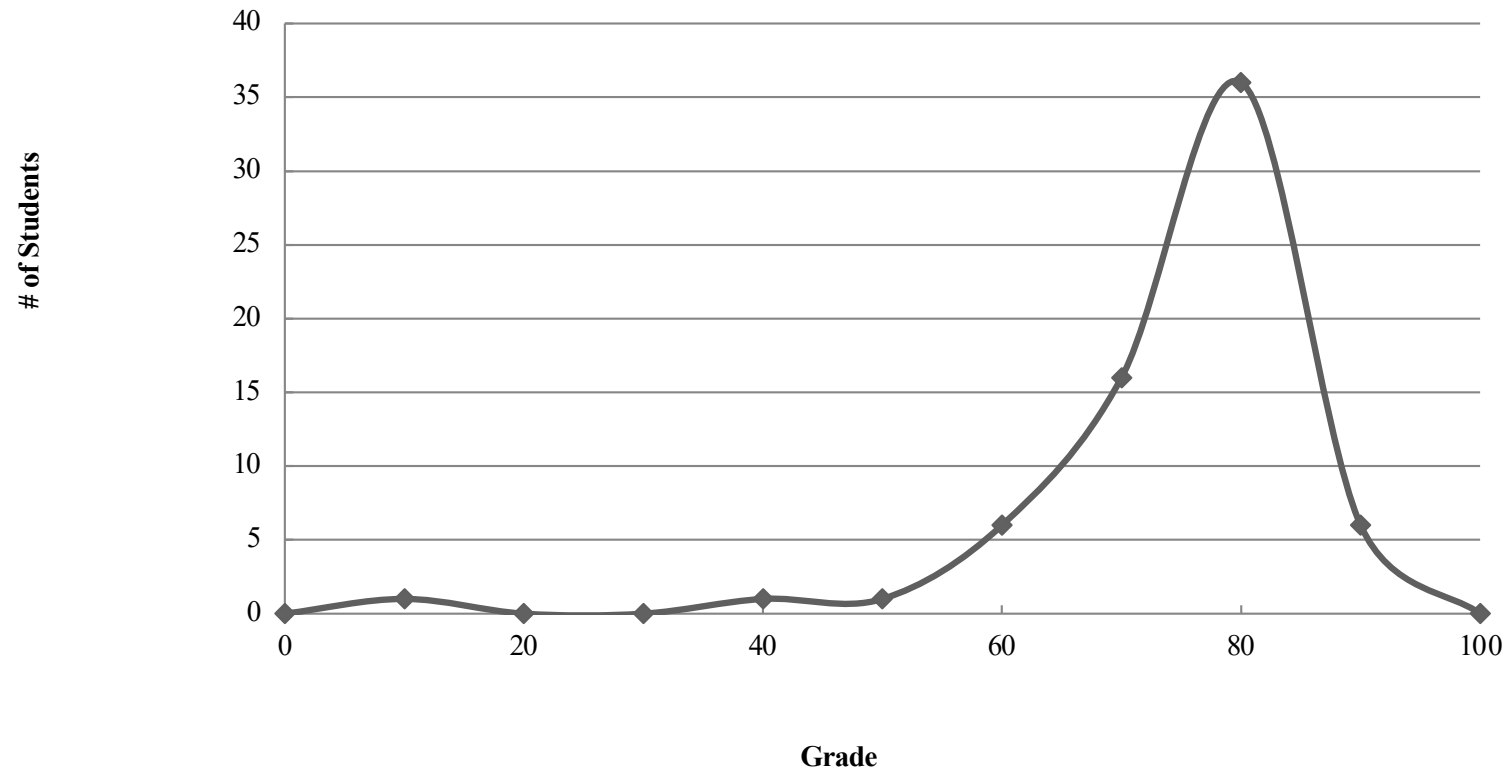


Semester Grade Histogram - 2006 Fall



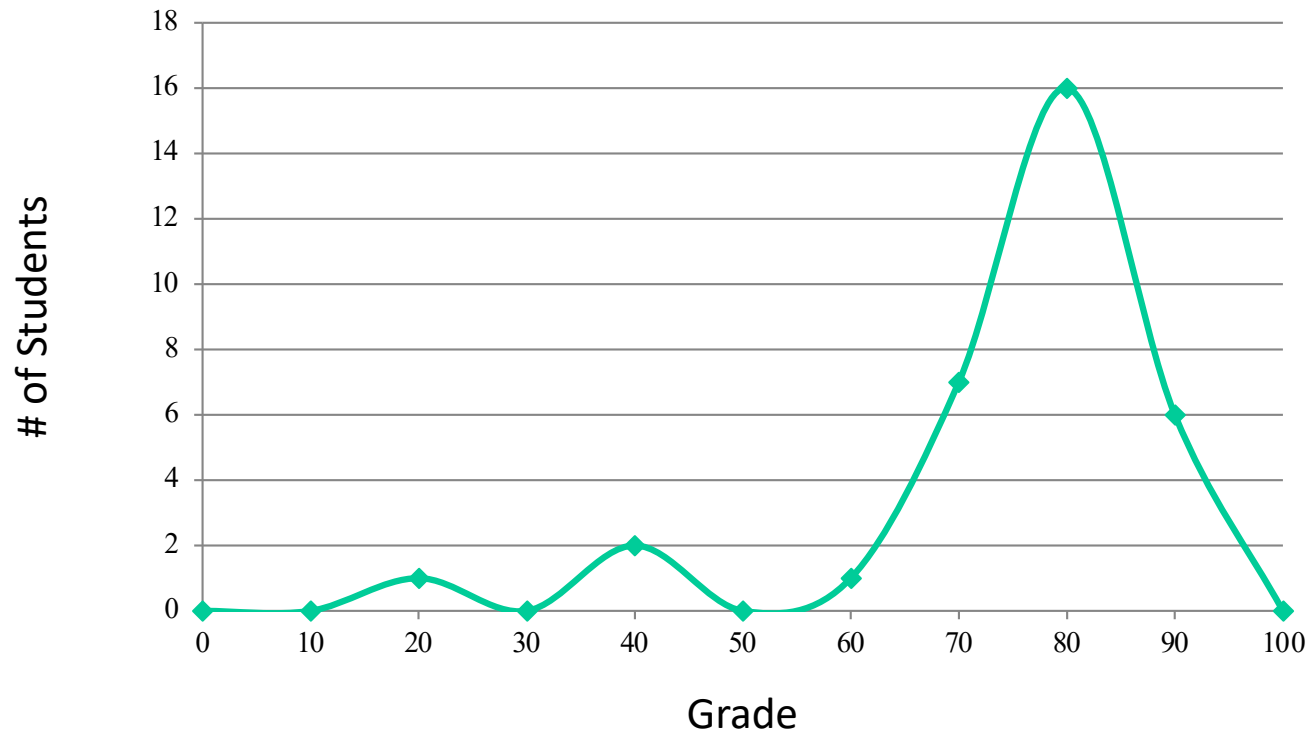


## Semester Grade Histogram - 2008 Fall

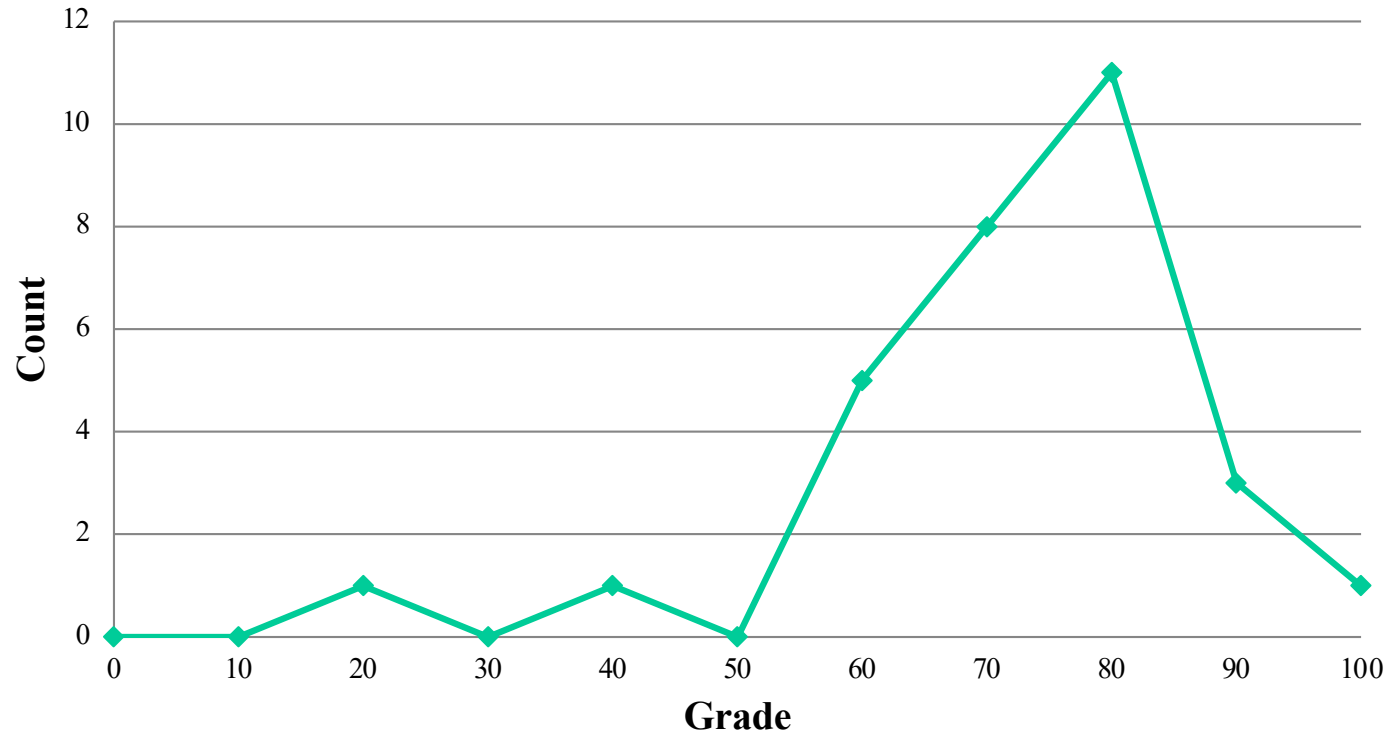




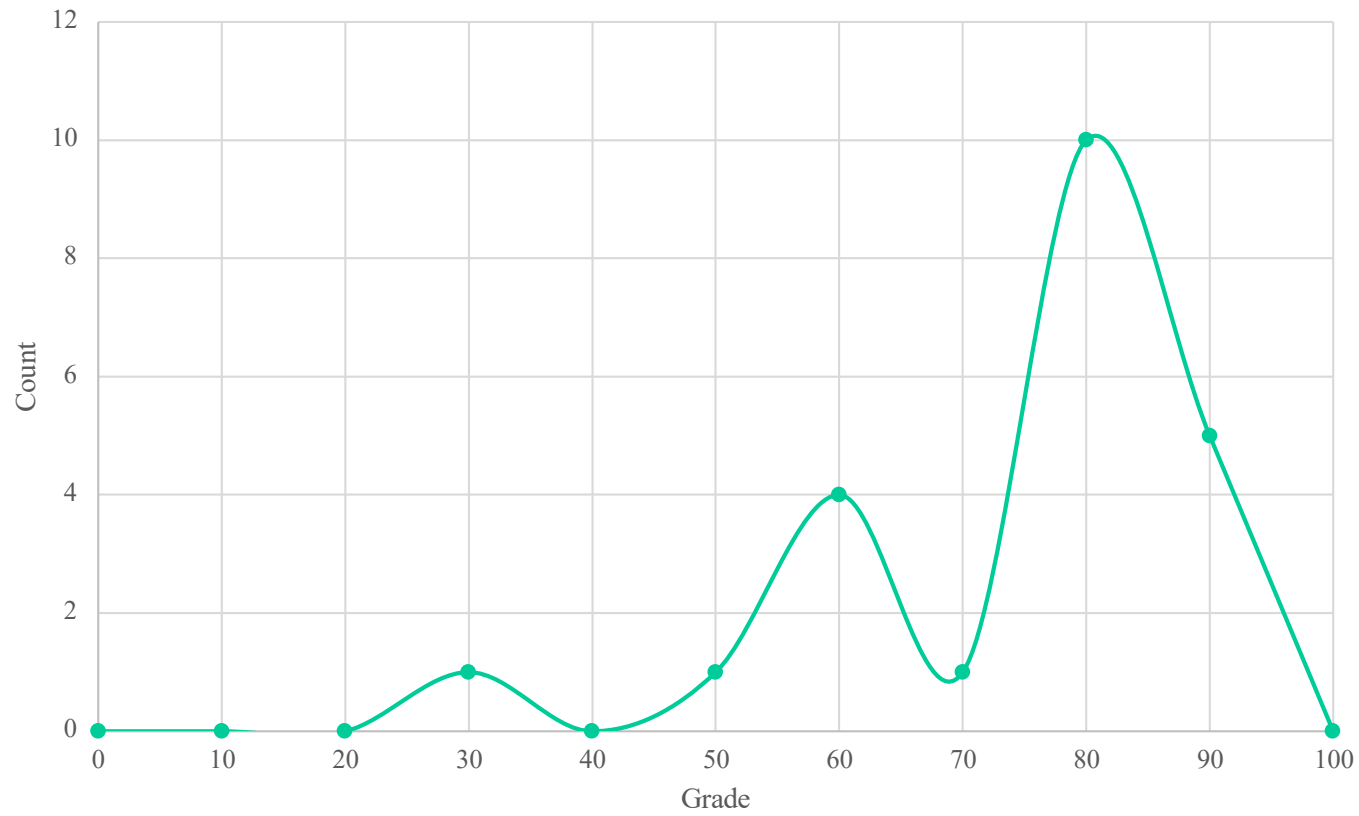
## Semester Grade Histogram - 2009 Fall



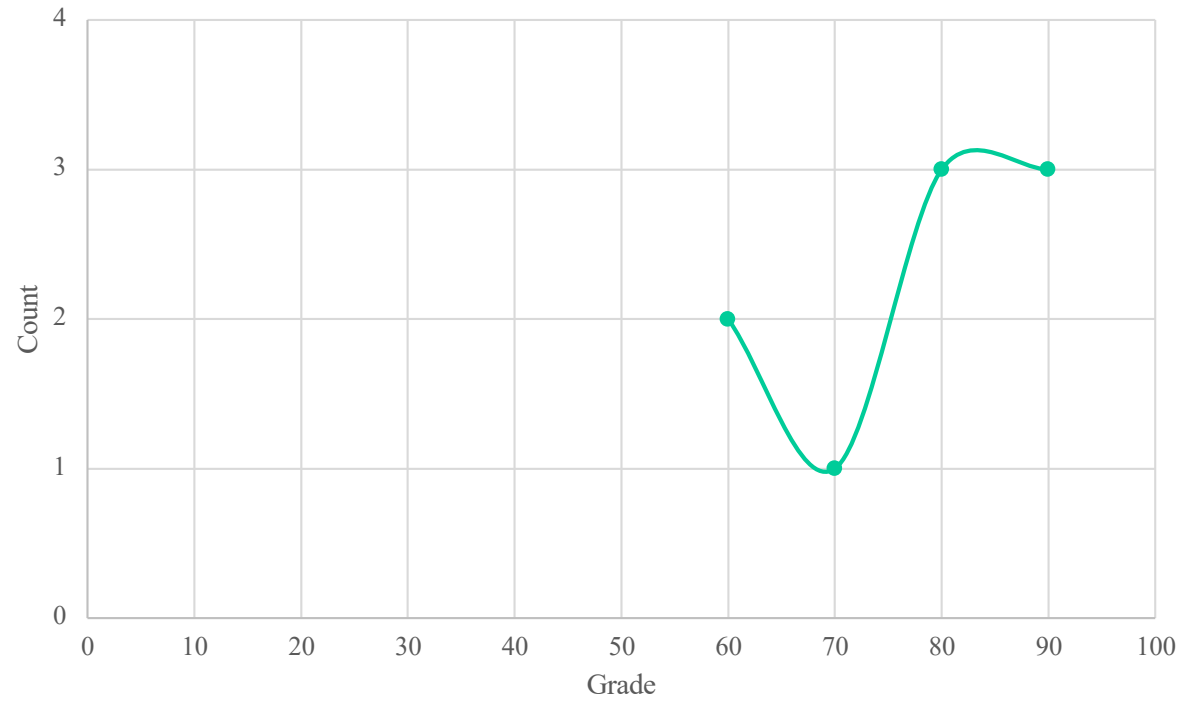
### Semester Grade Histogram - 2012 Fall



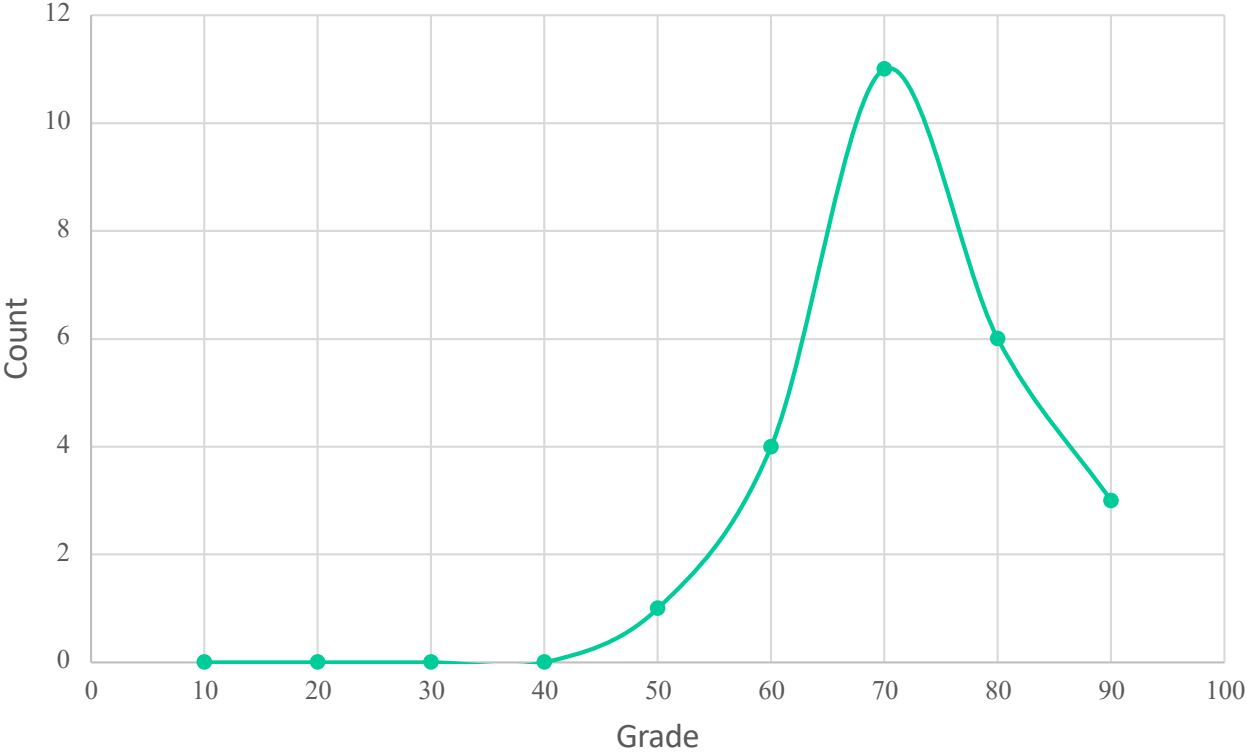
Semester Grade Histogram - 2014 Fall



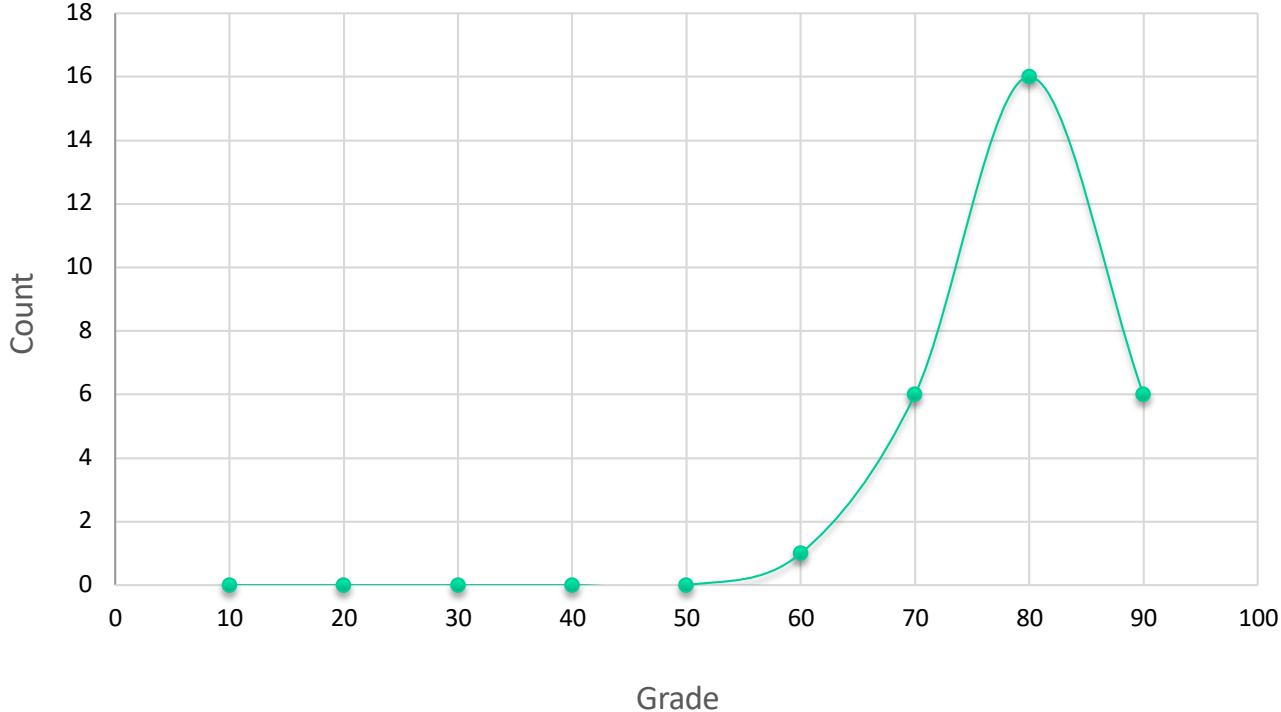
Semester Grade Histogram - 2015 Fall



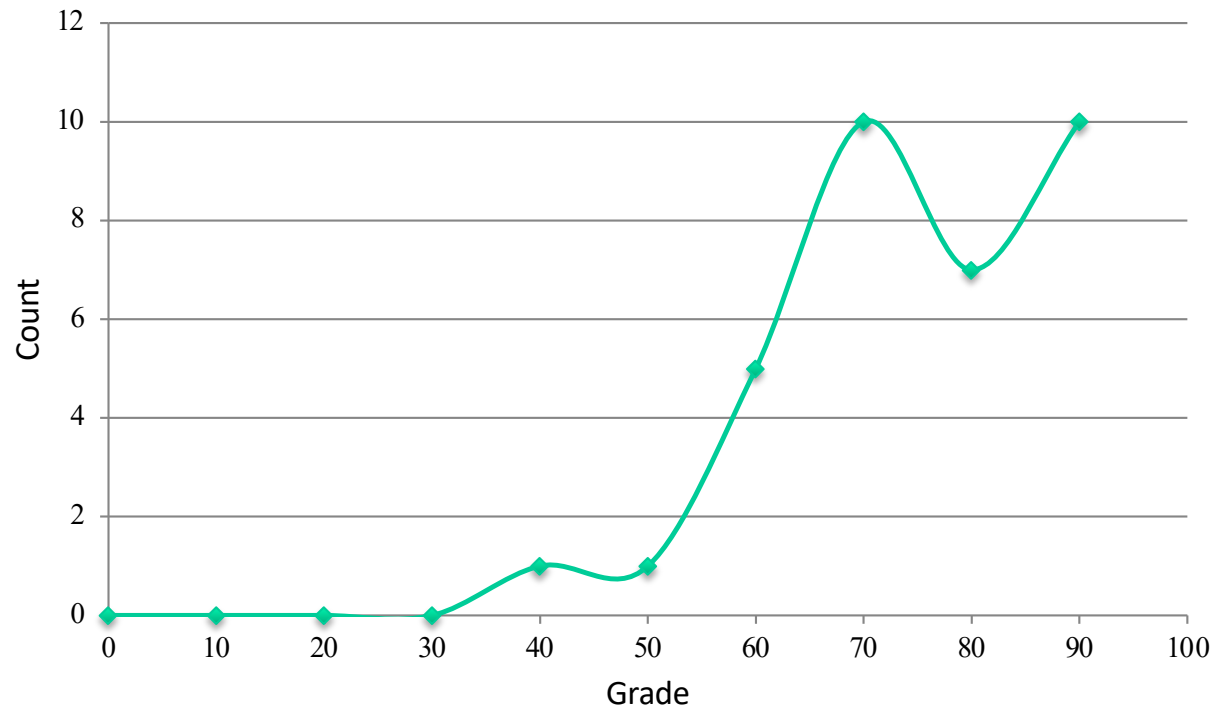
Semester Grade Histogram - Fall 2016

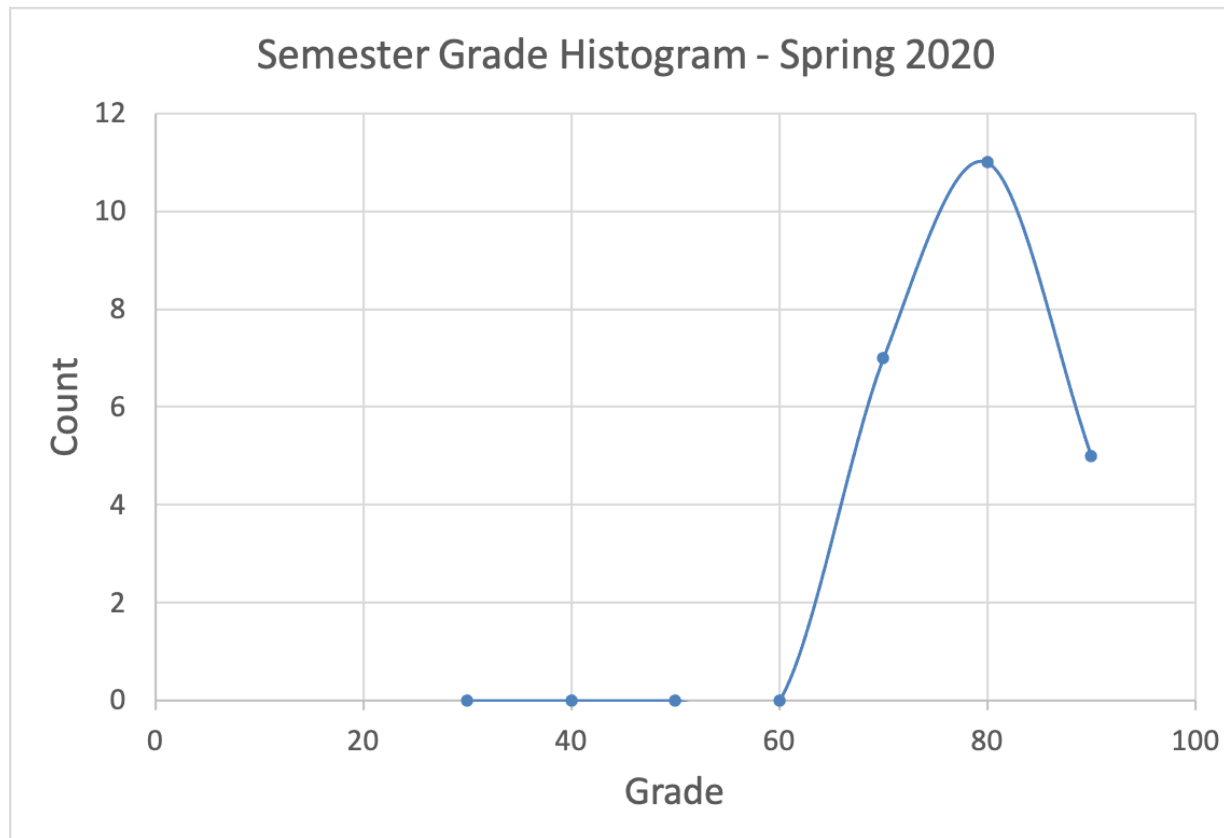


Semester Grade Histogram - Fall 2018

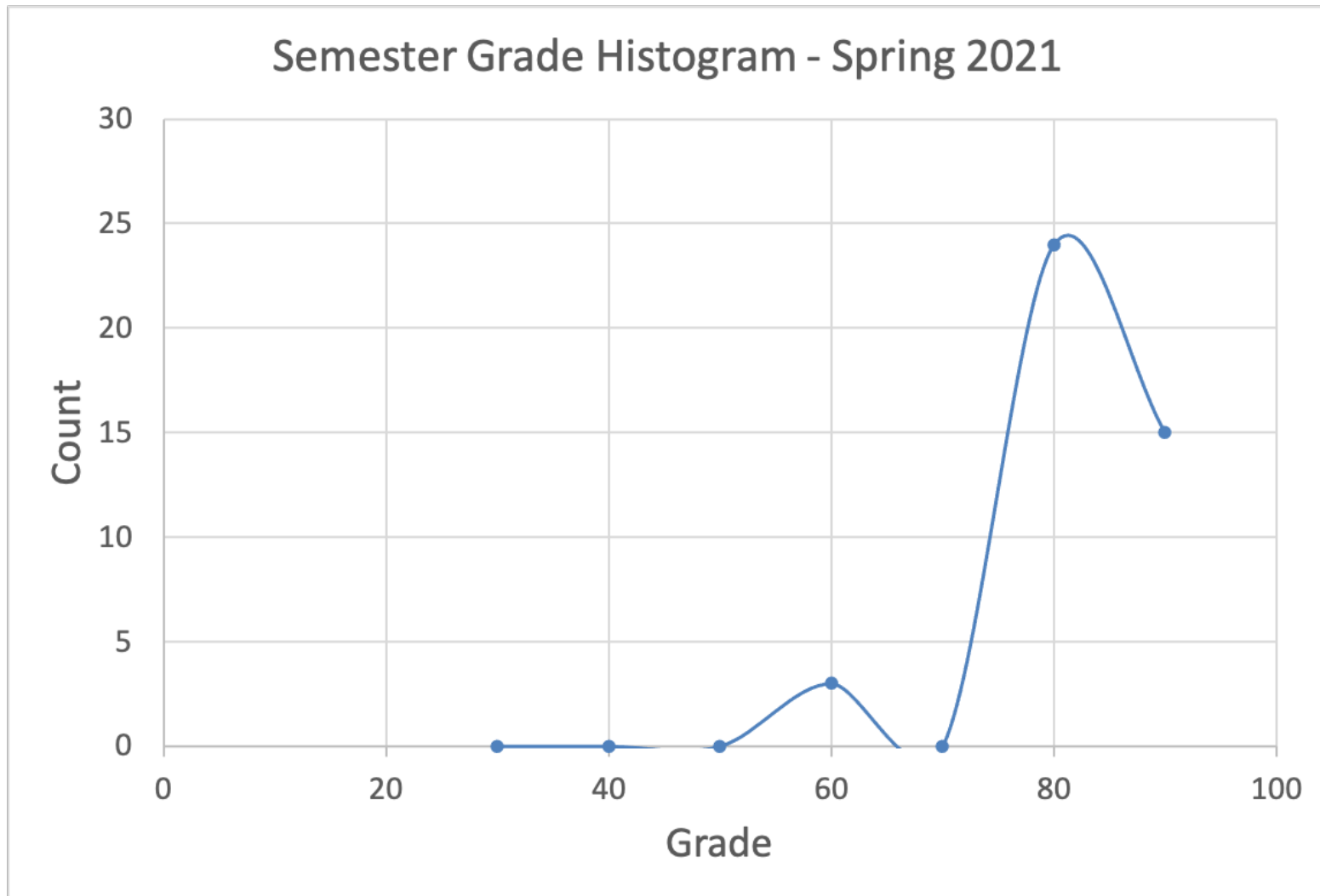


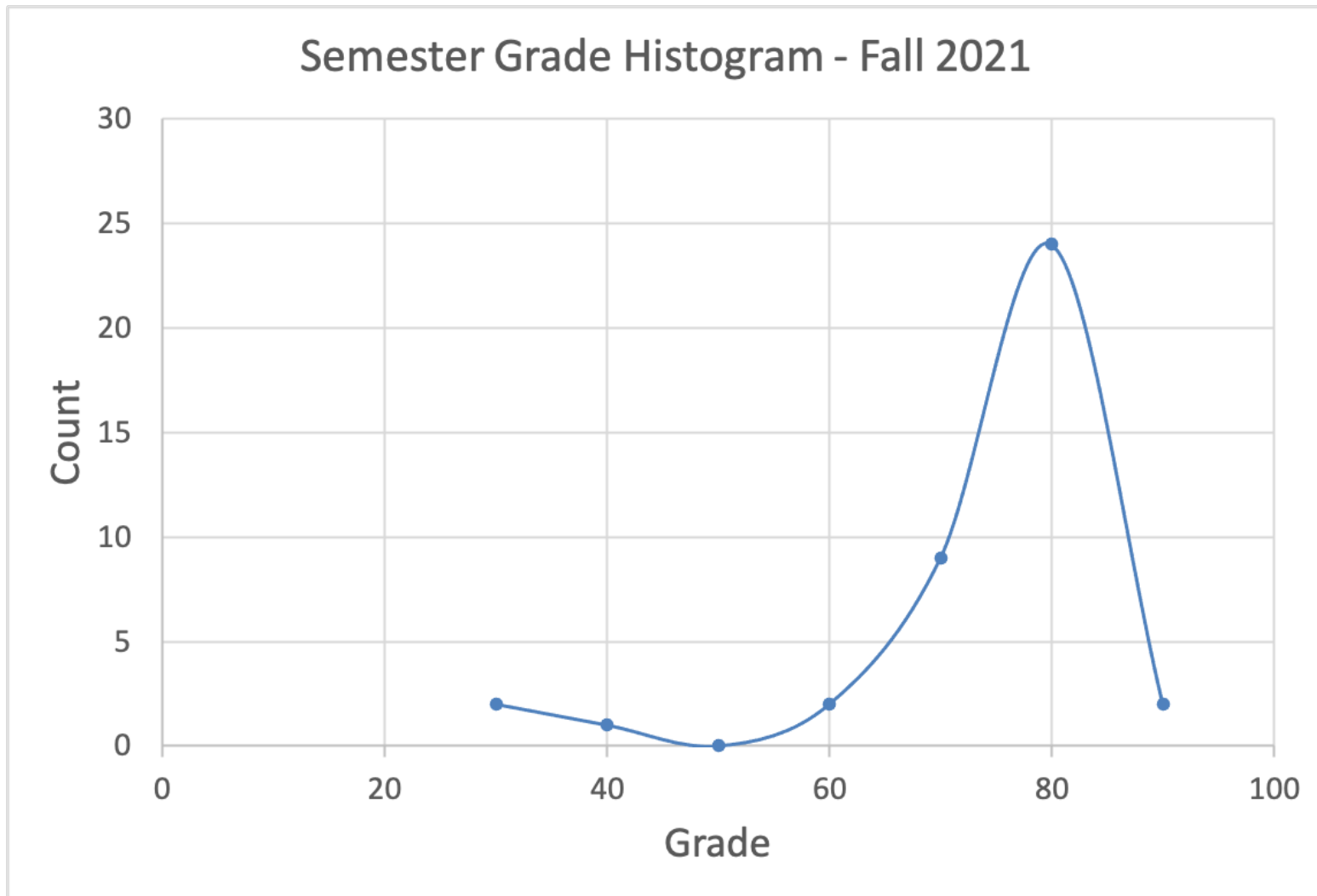
Semester Grade Histogram - Fall 2019

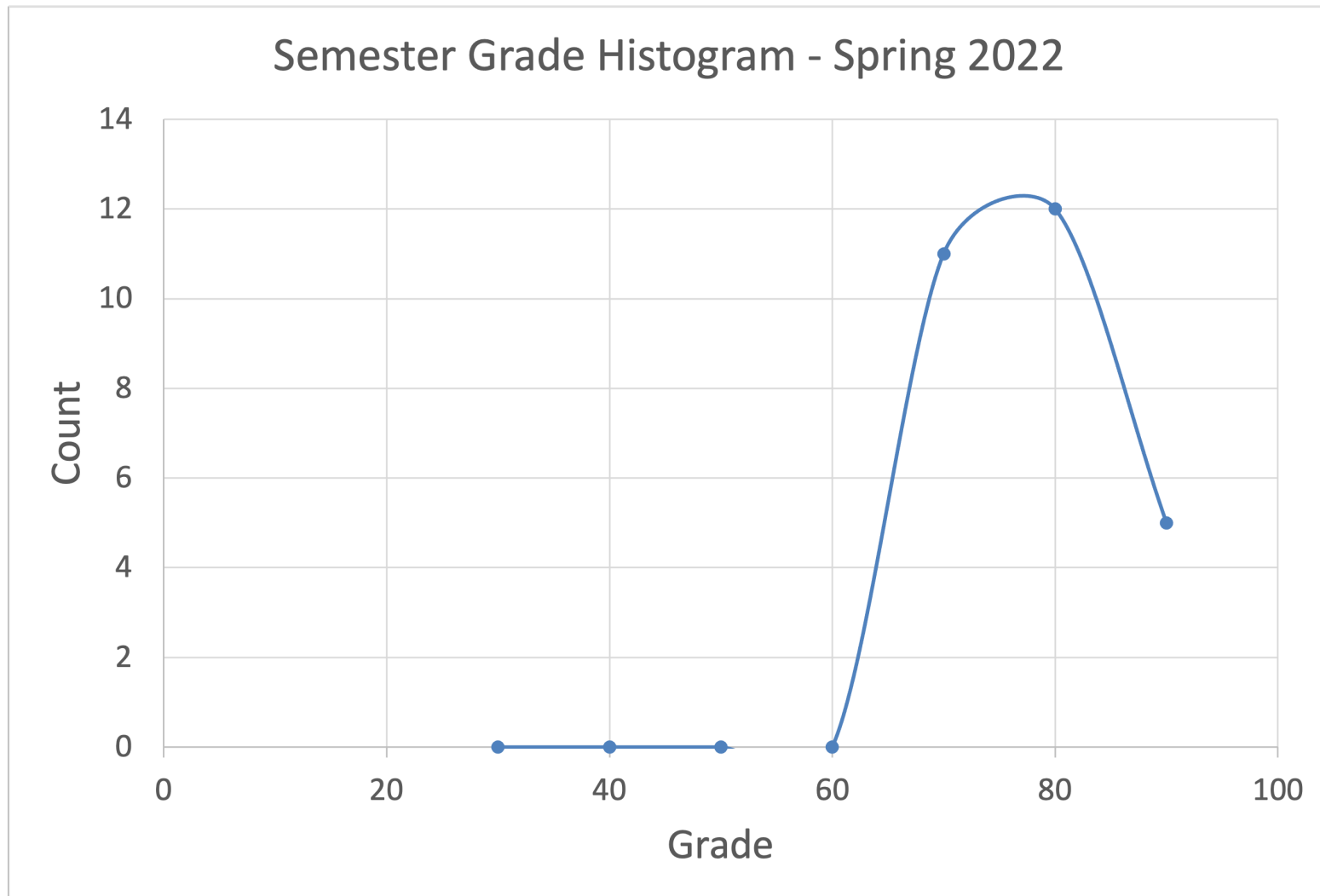


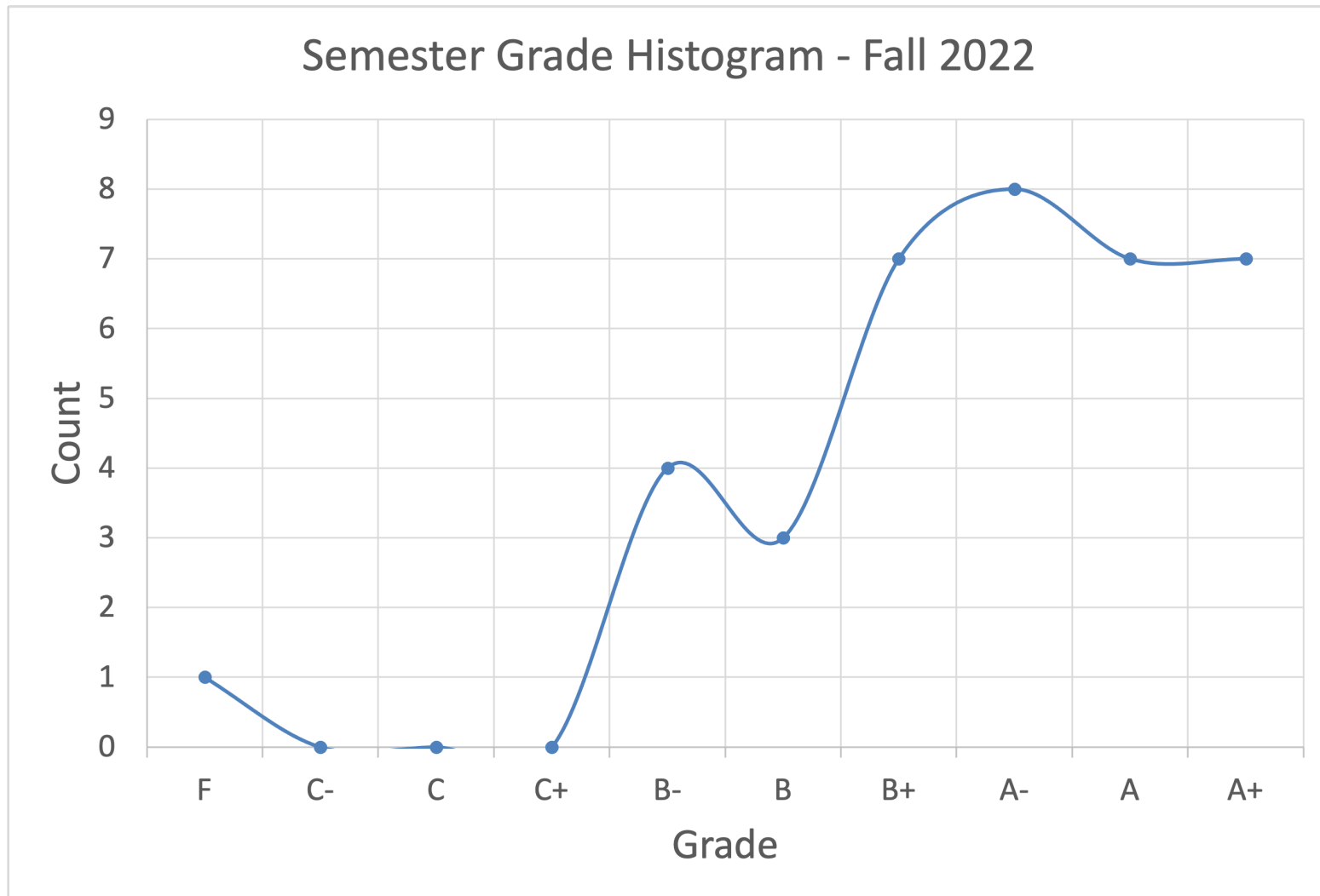


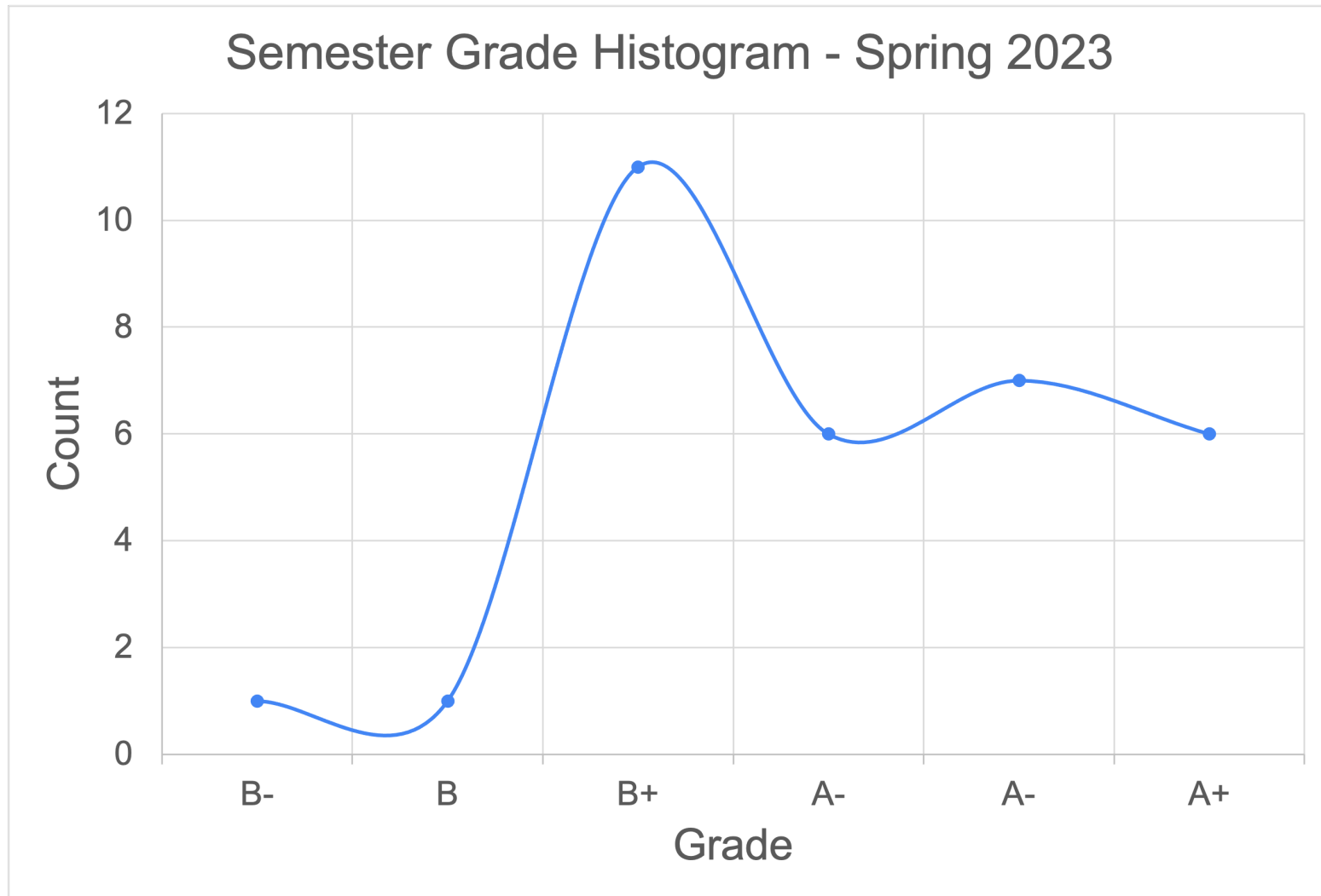


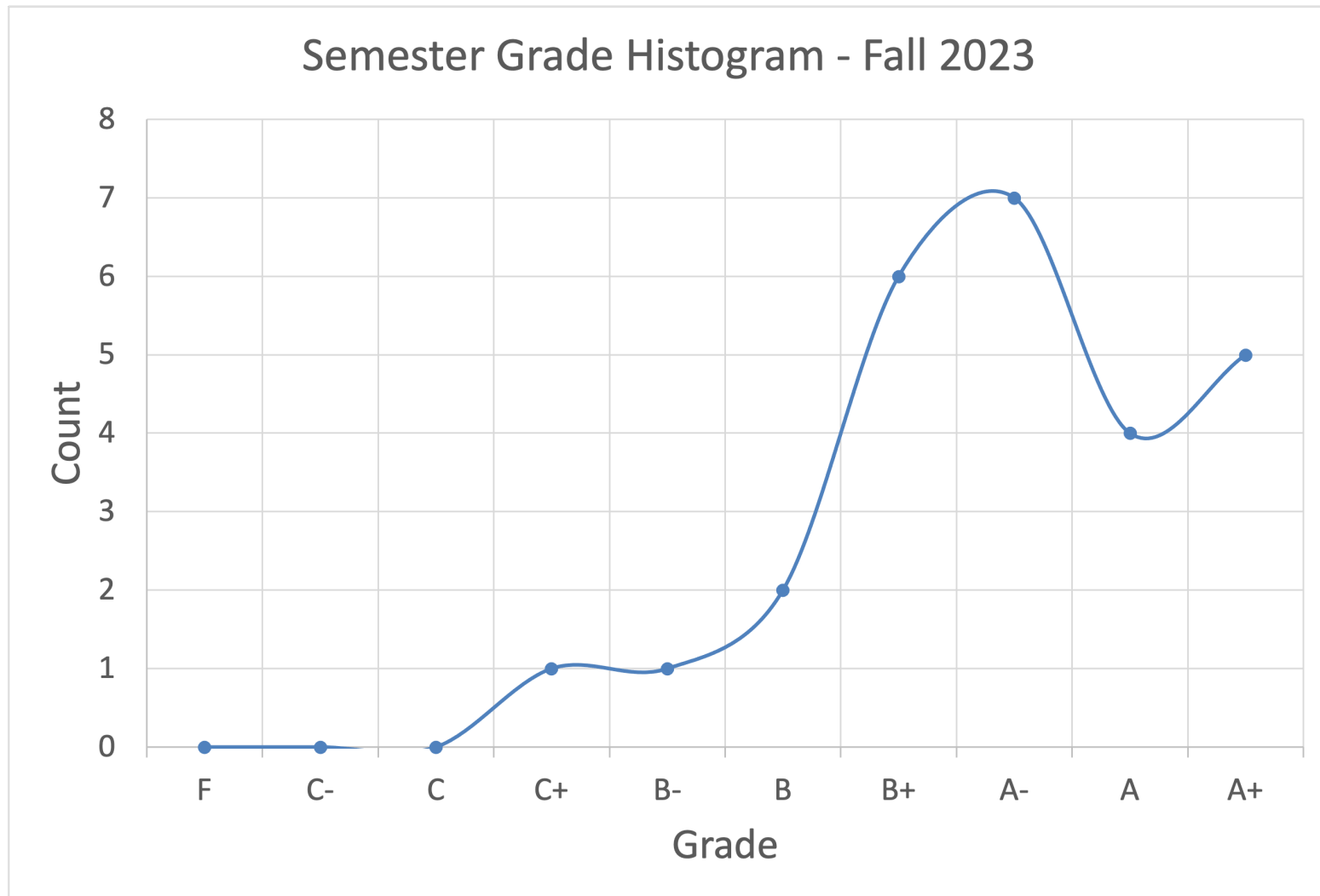












# Add Code?

- Due to course design and capacity
  - hopefully 20s to low 30s...
- FCFS + prerequisite
  - enter by the Google Form on the course page
  - complete Quiz#1-2
  - result (with ADD code) posted on Discord by 2/28 about 5pm

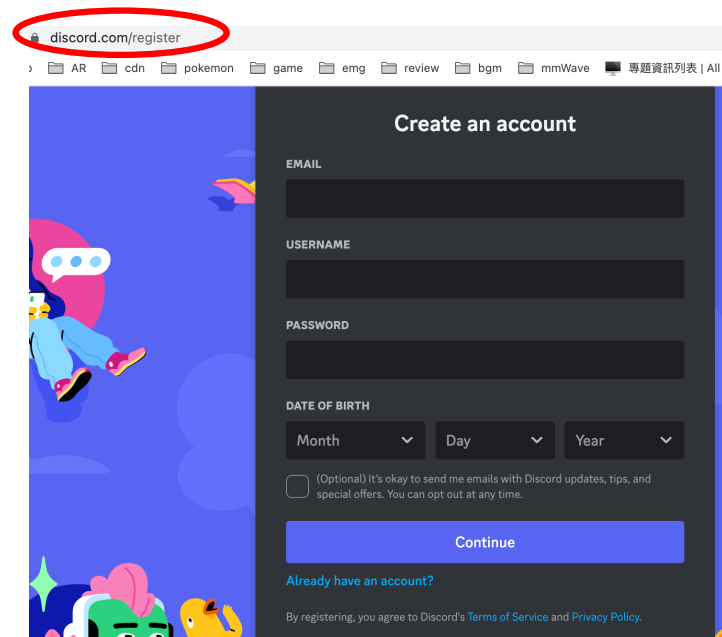
# Cautions

- Socket Programming
  - Go (or Golang)
- Quiz set
  - Adapted for the lecturing format
  - Interaction helps
- Exams
  - Online google form
  - Too long to complete



# Please bear with us!

- Online participation
  - Stability is up to our ISPs
  - Not perfectly real time
- Lecture as videos on YouTube
  - Shorter video units
  - Easier to catch up



Register to Discord first



WWW



YouTube



Discord

# The Class Admin

# Roadmap

- **The essentials**
- Administrative Information
- Content
  - Course objective and scope
  - Schedule and topics
- Your responsibility & Grading policy
  - Homework
  - Quiz + Class participation
  - Exams
- Class material

# The Essentials



- Course page
  - <http://homepage.ntu.edu.tw/~pollyhuang/teach/intro-cn-spring-24/>
- Polly Huang
  - <http://homepage.ntu.edu.tw/~pollyhuang>
  - Click the 'Teaching' link
  - Then, click the 'Spring 2024' under the 'Introduction to Computer Networks' category

# Roadmap

- The essentials
- **Administrative Information**
- Content
  - Course objective and scope
  - Syllabus
- Your responsibility & Grading policy
  - Homework
  - Quiz + Class participation
  - Exams
- Class material

# Lecture Info

- Location
  - YouTube
- Time
  - Tuesday, 13:20-14:10
  - Wednesday, 10:20-12:10

# The Instructor

- Polly Huang
  - Office: BL, Room 613
  - Phone: 3366-3599
  - Email: [pollyhuang@ntu.edu.tw](mailto:pollyhuang@ntu.edu.tw)
  - Homepage:  
<http://homepage.ntu.edu.tw/~pollyhuang>



# Office Hour

- Wednesday 12:20-13:10
  - Or by appointment
- Via Meet, or in person (mask on)

# The TA

- Guocheng Lee
  - Office: BL, Room 621
  - Email: [r12942085@ntu.edu.tw](mailto:r12942085@ntu.edu.tw)

# Roadmap

- The essentials
- Administrative Information
- **Content**
  - Course objective and scope
  - Schedule and topics
- Your responsibility & Grading policy
  - Homework
  - Quiz + Class participation
  - Exams
- Class material

# Nature

- A first course on the Internet
- Designed for EECS students

# Prerequisite

- Must
  - Introduction to Computer Programming
  - Introduction to Computers (Science)
- Preferred
  - Data Structure and Computer Programming

# Objectives

- Knowing the existence and the components of the Internet (**what**)
- Examining the mechanisms running in various components (**how**)
- Understanding the nature of the problems these mechanisms are trying to solve (**why**)

# Scope

- The data network, a.k.a. the Internet
- By the layers
  - Application Layer, Transport Layer, Network Layer, Link Layer
- By the common functions across layers
  - ~~Mobile Wireless Networking, Multimedia Networking~~

# Syllabus+Schedule: 1<sup>st</sup> 1/3

- W1 02/20- Class Admin, Overview
- W2 02/27- Overview ([PA#1 due 03/02](#))
- W3 03/05- Application ([PA#2 due 03/09](#))
- W4 03/12- Application
- W5 03/19- Application ([PA#3 due 03/23](#))
- W6 03/26- **Exam #1 (03/27)**



# Syllabus+Schedule: 2<sup>nd</sup> 1/3

- W7 04/02- Transport (PA#4 due 04/06)
- W8 04/09- Transport (PA#5 due 04/13)
- W9 04/16- Transport (PA#6 due 04/20)
- W10 04/23- Transport (PA#7 due 04/27)
- W11 04/30- **Exam #2 (05/01)**

# Syllabus+Schedule: 3<sup>rd</sup> 1/3

- W12 05/07- Network
- W13 05/14- Network ([PA#8 due 05/18](#))
- W14 05/21- Network ([PA#9 due 05/25](#))
- W15 05/28- Link
- W16 06/04- **Exam #3 (06/05)**

# Roadmap

- The essentials
- Administrative Information
- Content
  - Course objective and scope
  - Syllabus
- **Your responsibility & Grading policy**
  - Homework
  - Quiz & Class participation
  - Exams
- Class material

# Grading

- Homework
  - Programming assignments (35%)
  - PA1 (3%), PA2-PA9 (4%)
- Interaction
  - Pop-Up Quiz (30%)
  - Participation (5%)
- Exams
  - 3 exams (30%)

# Team vs. Individual

- Teamwork
  - Programming assignments (35%)
  - Pop-Up Quiz (30%)
- Individual
  - Participation (5%)
  - Exams (30%)

# Team Up – Loners Allowed

- 1-3 students per team
  - No more
- Same members for
  - Programming Assignment
  - Pop-Up Quiz
- Break-up allowed
  - But be cautious of your decision

# Homework Assignments

- 9 programming assignments
  - Unix and Go socket programming
- Submission all in electronic format

# Programming Assignments

- Stage 1 – TCP socket
  - PA1: Unix commands
  - PA2: accessing file
  - PA3: file upload client
  - PA4: file upload server (1 upload)
  - PA5: looping server (multiple uploads)
  - PA6: concurrent server (parallel uploads)



# Programming Assignments

- Stage 2 – Web server
  - PA7: web request interpreter
  - PA8: web response sender
  - PA9: secure web server
  - needs more self-help and creativity

# In-Class Quizzes

- Random quiz
  - Problem related to the topics of the week
  - Given time to work in class
  - Posted on Discord, 1 channel per quiz
- To fulfill this requirement
  - Solve it in or off class (type or speak)
  - Post your solutions on Discord by Saturday 18:00
  - Graded on completion rate (25%)
  - First/unique/thoughtful sharing get extra points (5%)

# Late assignment penalty

- ~1hrs: -10%
- ~6hrs: -20%
- ~12hrs: -40%
- ~24hrs: -80%
- Otherwise: -100%

# Class Participation

- Interaction counts
  - Remember to identify yourself
- Interaction includes
  - Interacting in lecture, online, email, etc
  - Interacting with polly/TA/other students
- Graded on curve (scale to min/max of the class)

# Exams

- **3 exams (30%)**
  - Google Form
  - Google Meet
- In Q&A form
- Old exams available from the class page
- **No early/makeup exams**

# Late submission penalty

- ~1min: -12pts
- ~2mins: -25pts
- ~3mins: -50pts
- Otherwise: -100pts

(Out of 100pts)

# Exam Score

- Class average may vary
  - Difficulty
  - Length
- Adjustment
  - Same class average
  - Constant shift

# Integrity

- Shall there be any cheating behavior involved
  - You receive 0 for the grade
  - The case reported **to the department and the university**



# Semester Grade

- Passing grade
  - Sum to 60%
- Letter grade
  - Ranked by the numerical grades
  - Slightly different cut-off points per semester
  - Concentration at about A- and B+ (3.3-3.7)

# Gentle Reminder:

Polly is not nice!

# Roadmap

- The essentials
- Administrative information
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- Your responsibility & Grading policy
  - Homework
  - Quiz + Class participation
  - Exams
- **Class material**

# Class Material

- Textbook

Computer Networking: A Top-Down Approach, **7/e**

James F. Kurose & Keith W. Ross

(8/e is the latest but the diffs are few)

- Go reference book

An Introduction to Programming in Go

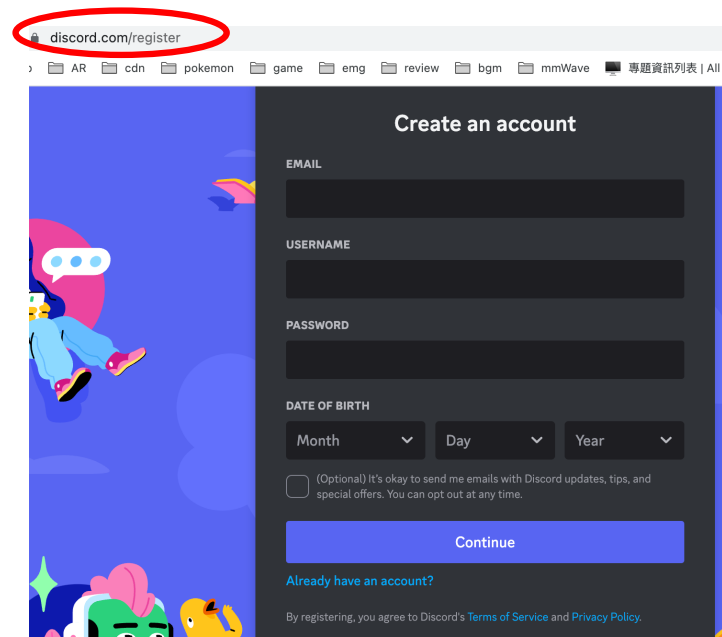
Caleb Doxsey

# Additional Material

- Lecture slides in pdf format
- Lecture videos on YouTube
- Everything else on Discord
  
- URLs available from the course page

# Questions?

Or join the Discord group and post!



Register to Discord first



WWW



YouTube



Discord

# Quiz Time!