

Introduction to Computer Networks Online

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Vital Information

- Course : 電腦網路導論
- Taught by : 黃寶儀
- Class No. : EE4020
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

COVID-19 Impact

- Minimum physical interaction
 - Lectures on YouTube
 - Except for today
 - Some Q&A on the live YT sessions
 - Discussion and further Q&A on Facebook
 - Exams on google forms

99% in English

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

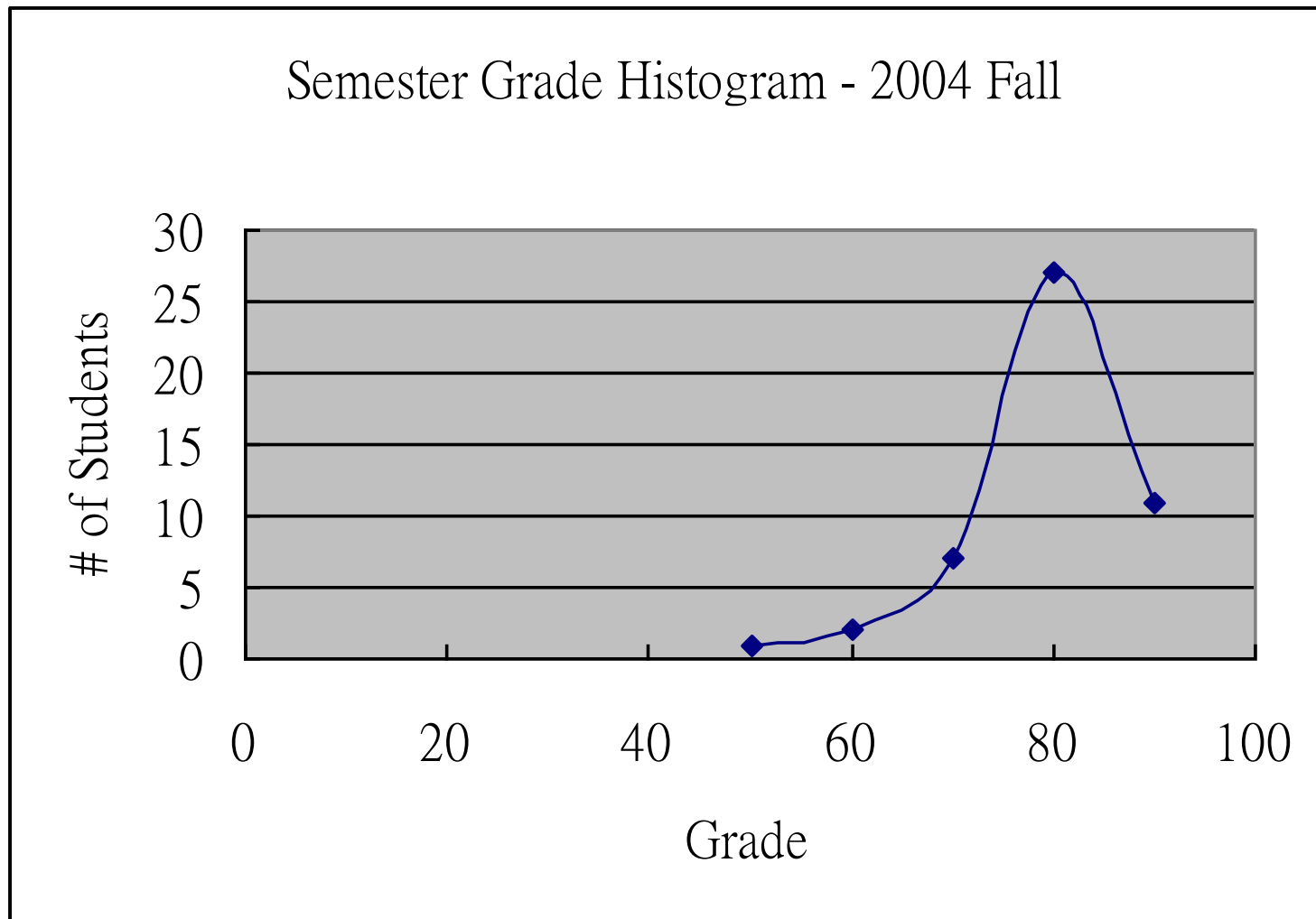
Be Aware

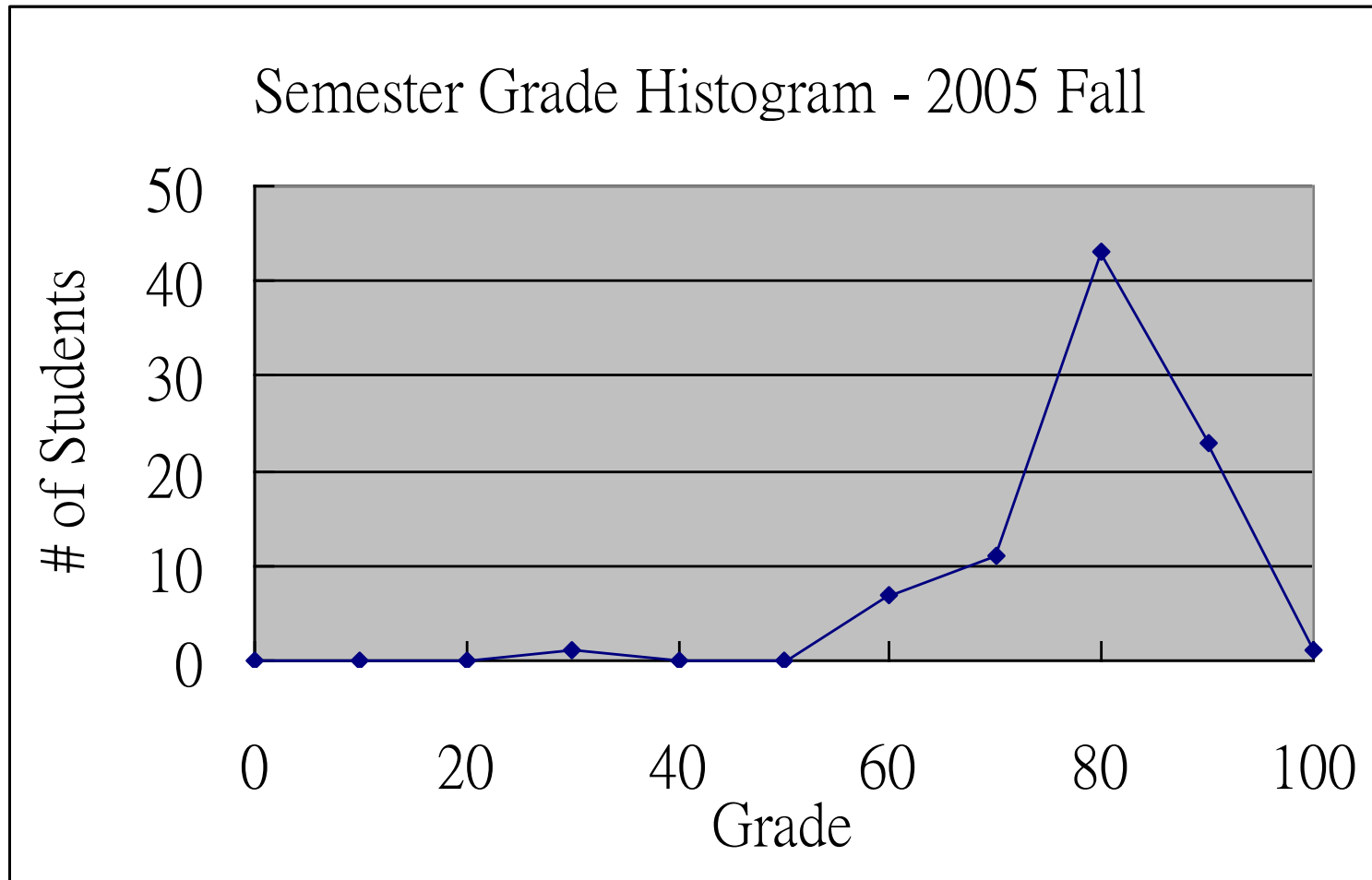
- Credits are granted only when the English is **comprehensible**
 - Keep your words/sentences simple
 - The point is to communicate

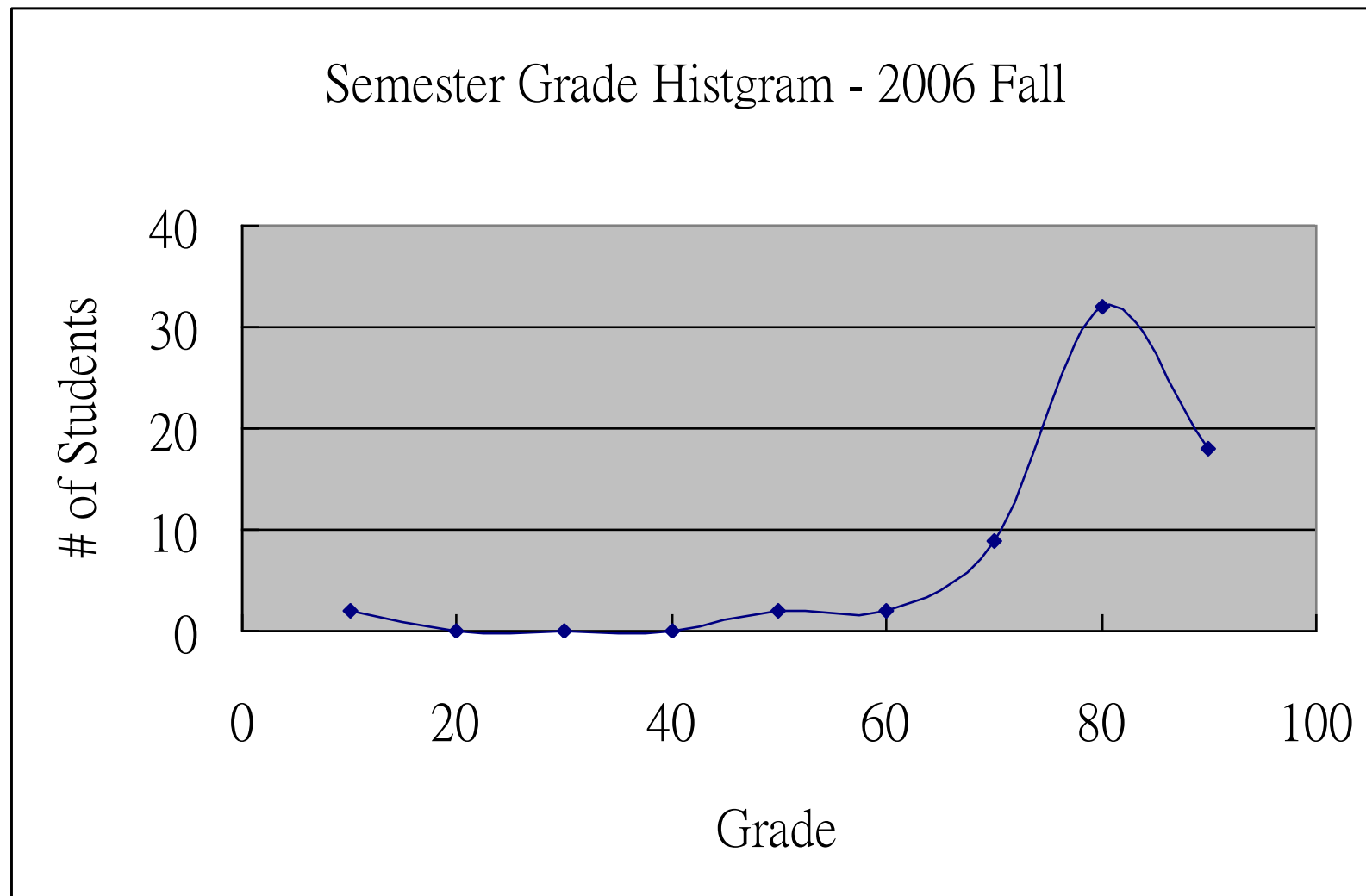
Add Code?

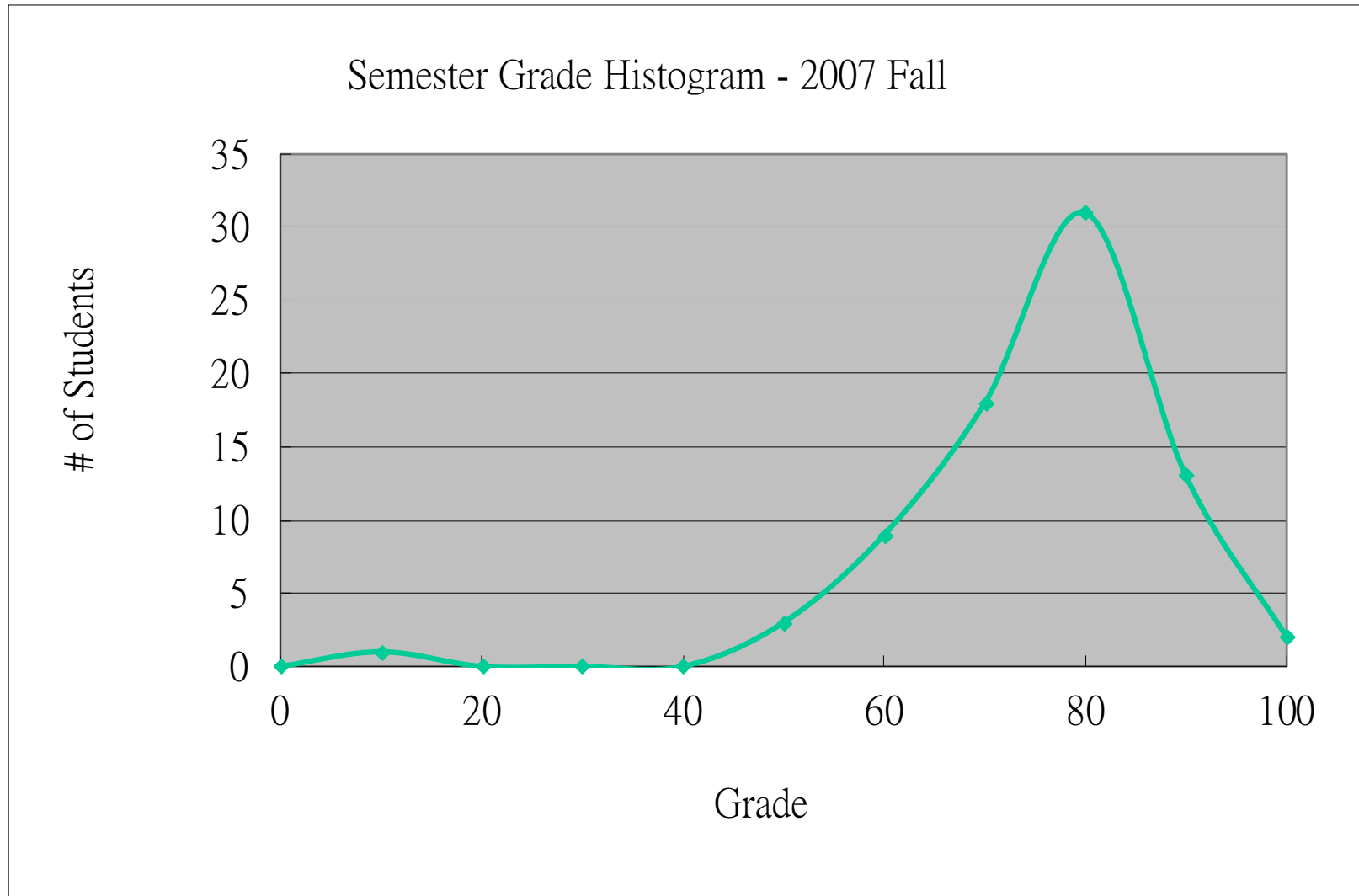
- Due to course format changes
 - online and much less interactive
 - ok to add 15-20 more students
- First come, first serve
 - by email, also to lower risk
 - State your name, dept, year

Polly is not nice!

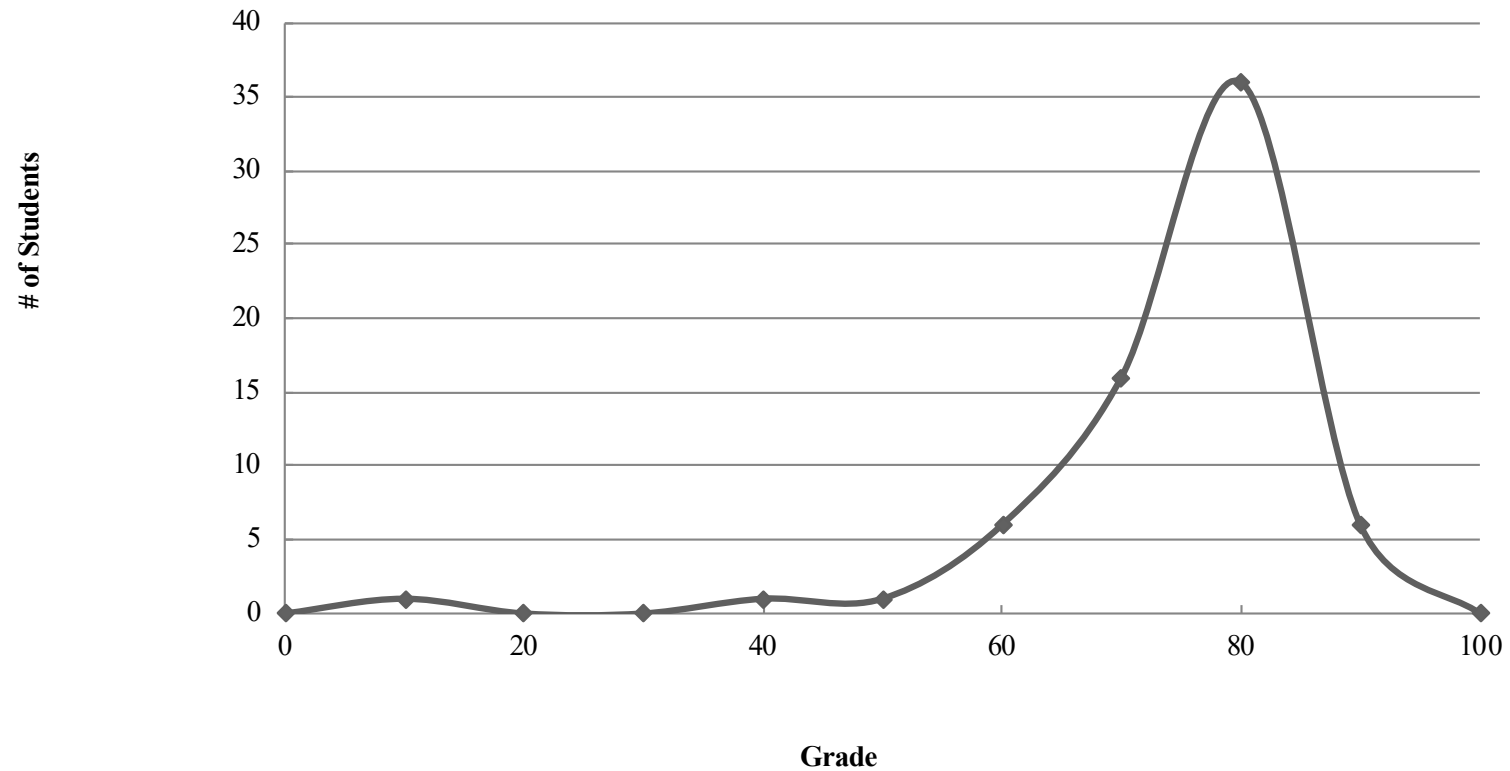




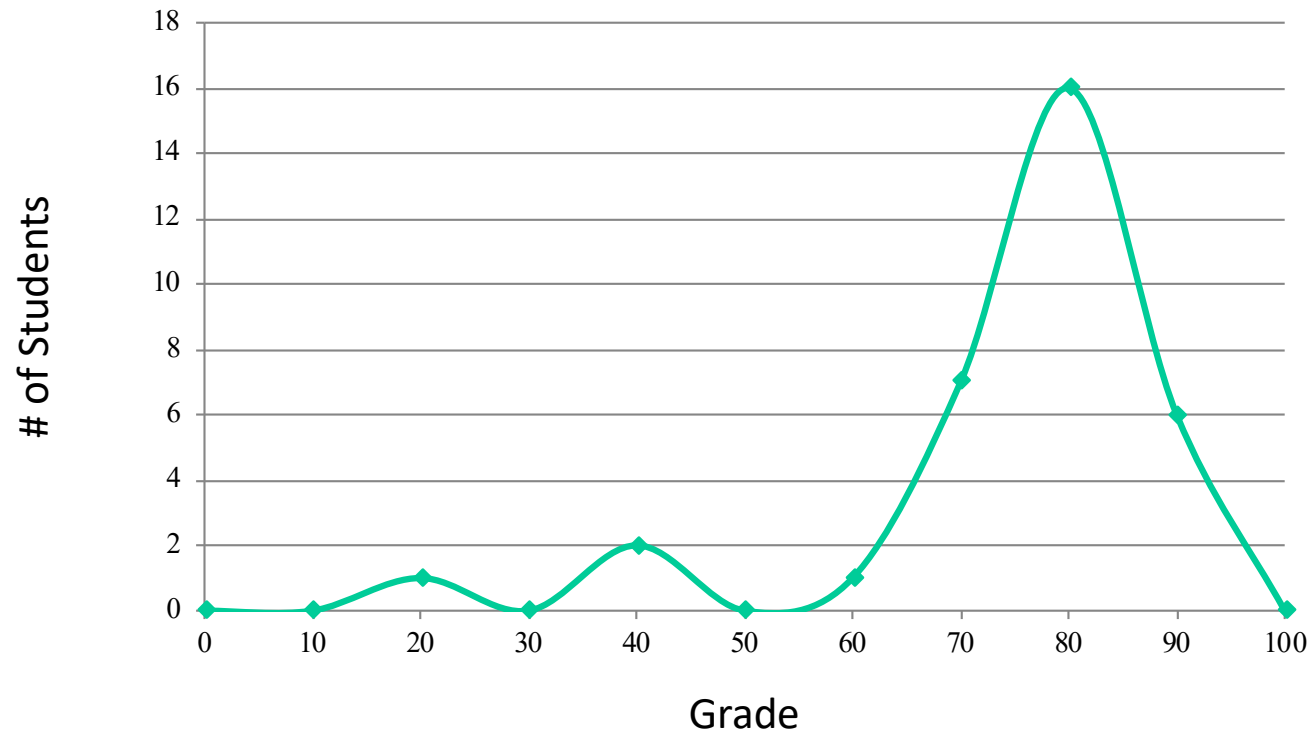




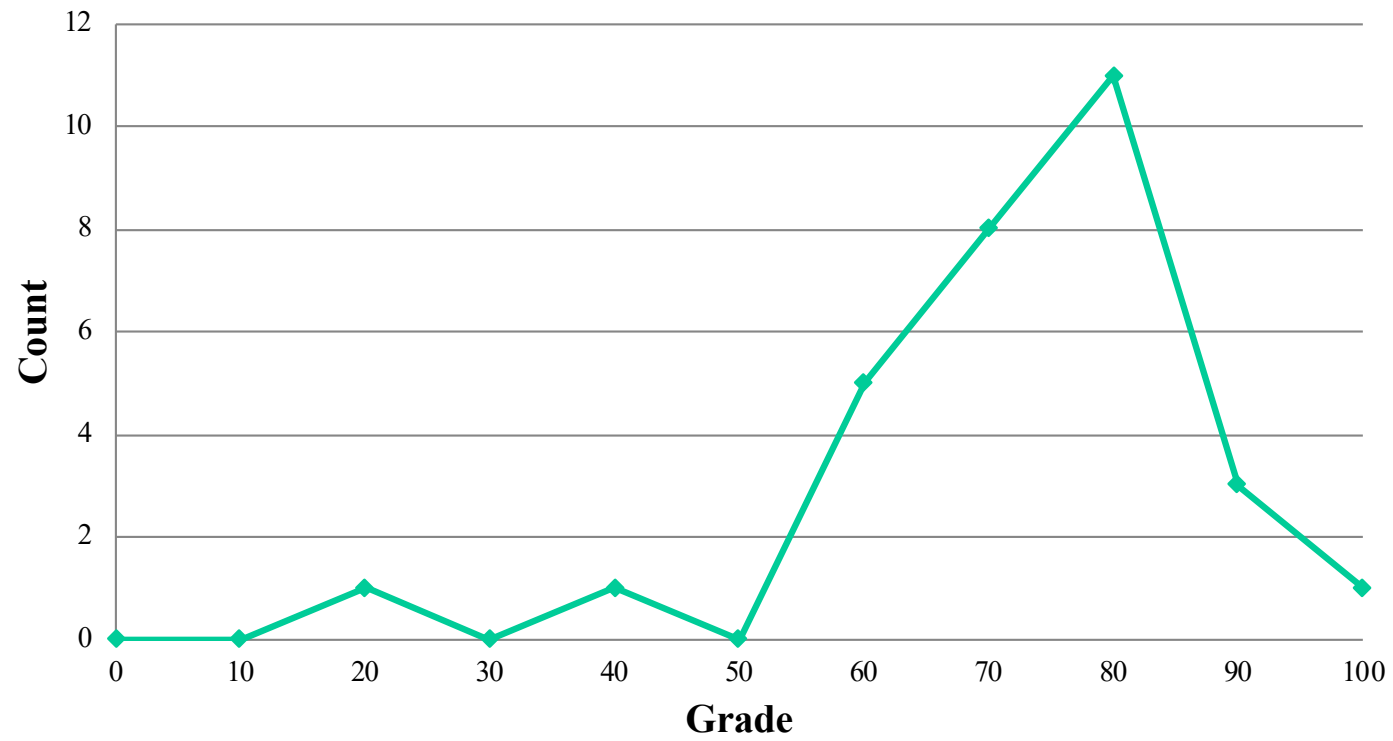
Semester Grade Histogram - 2008 Fall



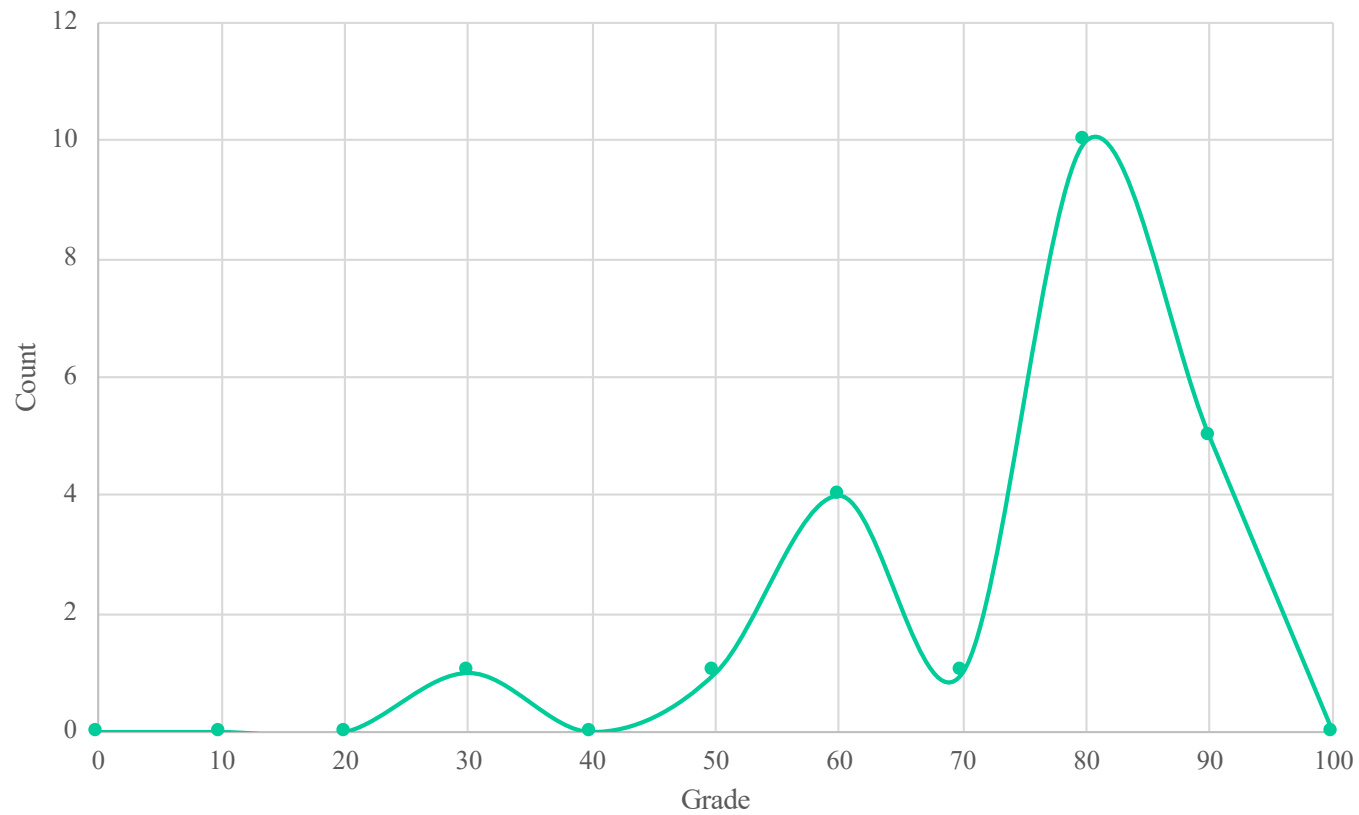
Semester Grade Histogram - 2009 Fall



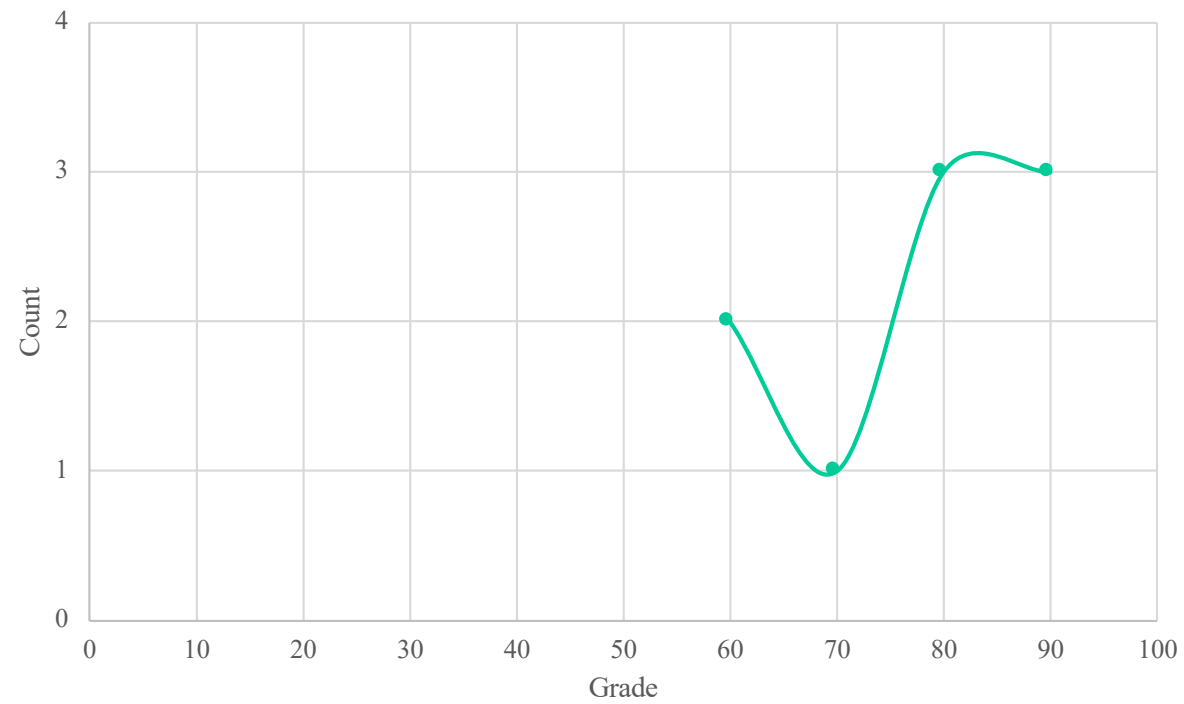
Semester Grade Histogram - 2012 Fall

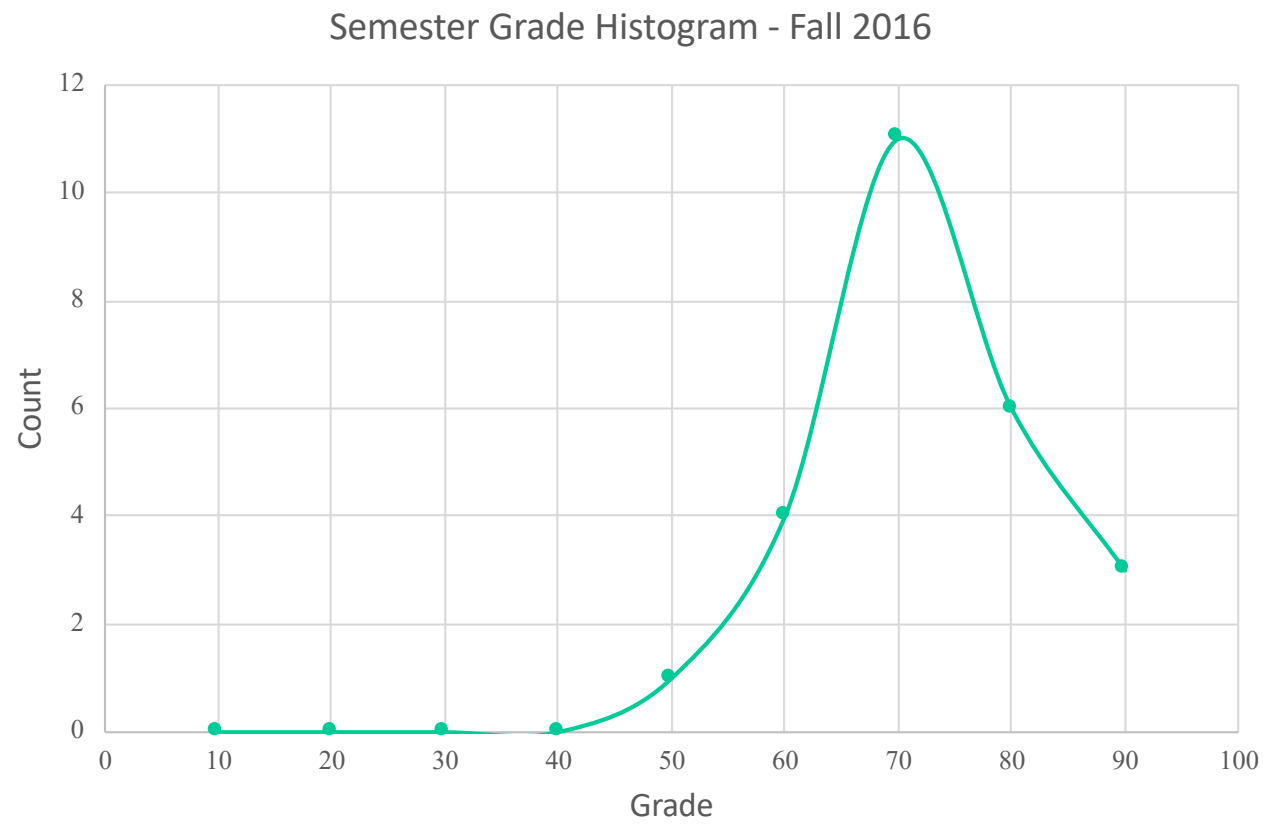


Semester Grade Histogram - 2014 Fall

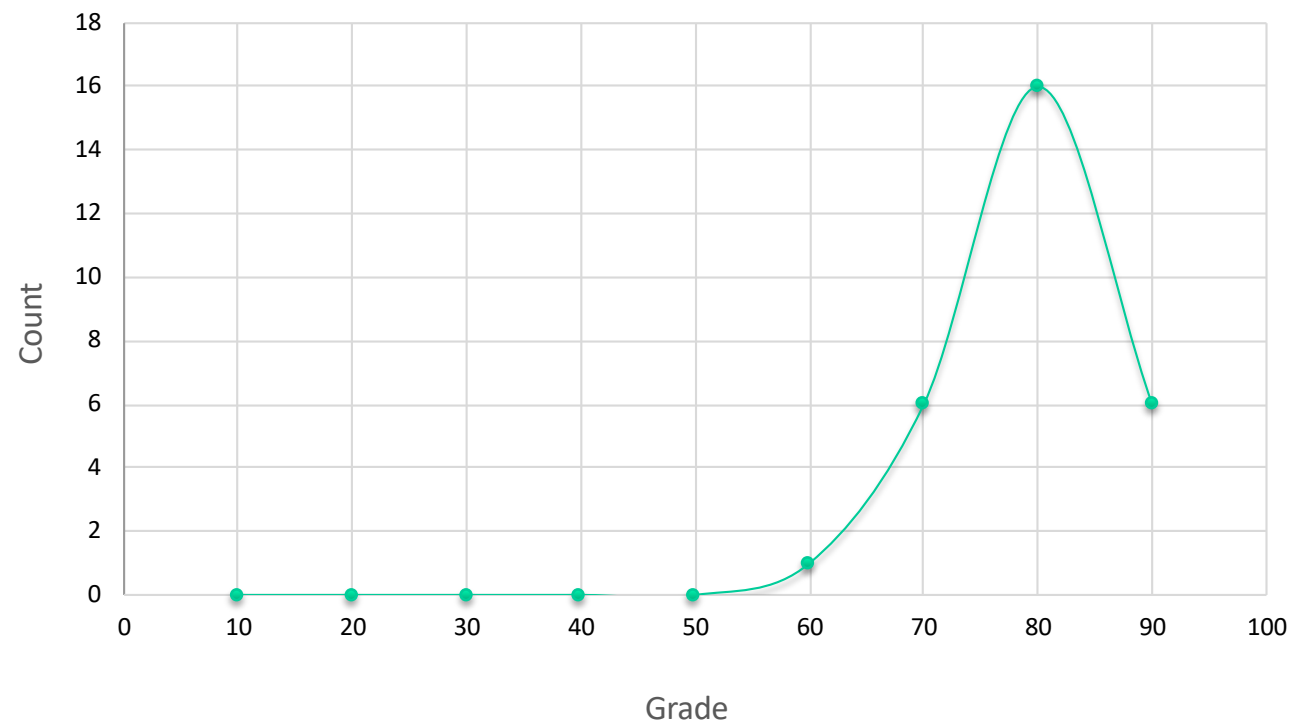


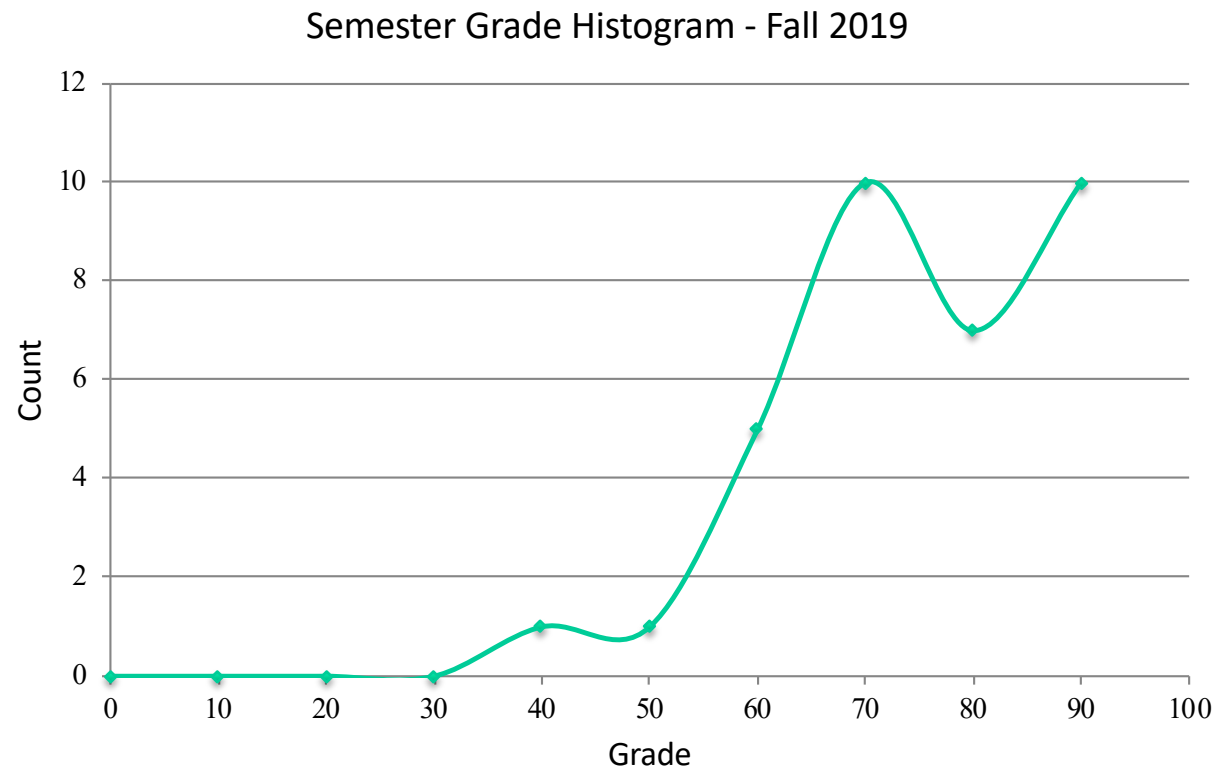
Semester Grade Histogram - 2015 Fall





Semester Grade Histogram - Fall 2018





Today



WWW



Facebook

Cautions on Major Changes

- Socket Programming
 - Go (or Golang)
- Quiz set
 - Adapted for the lecturing format
 - Much less interactive (less fun ☹)
- Exams
 - Online google form
 - Long and open/essay questions

Please bear with us!

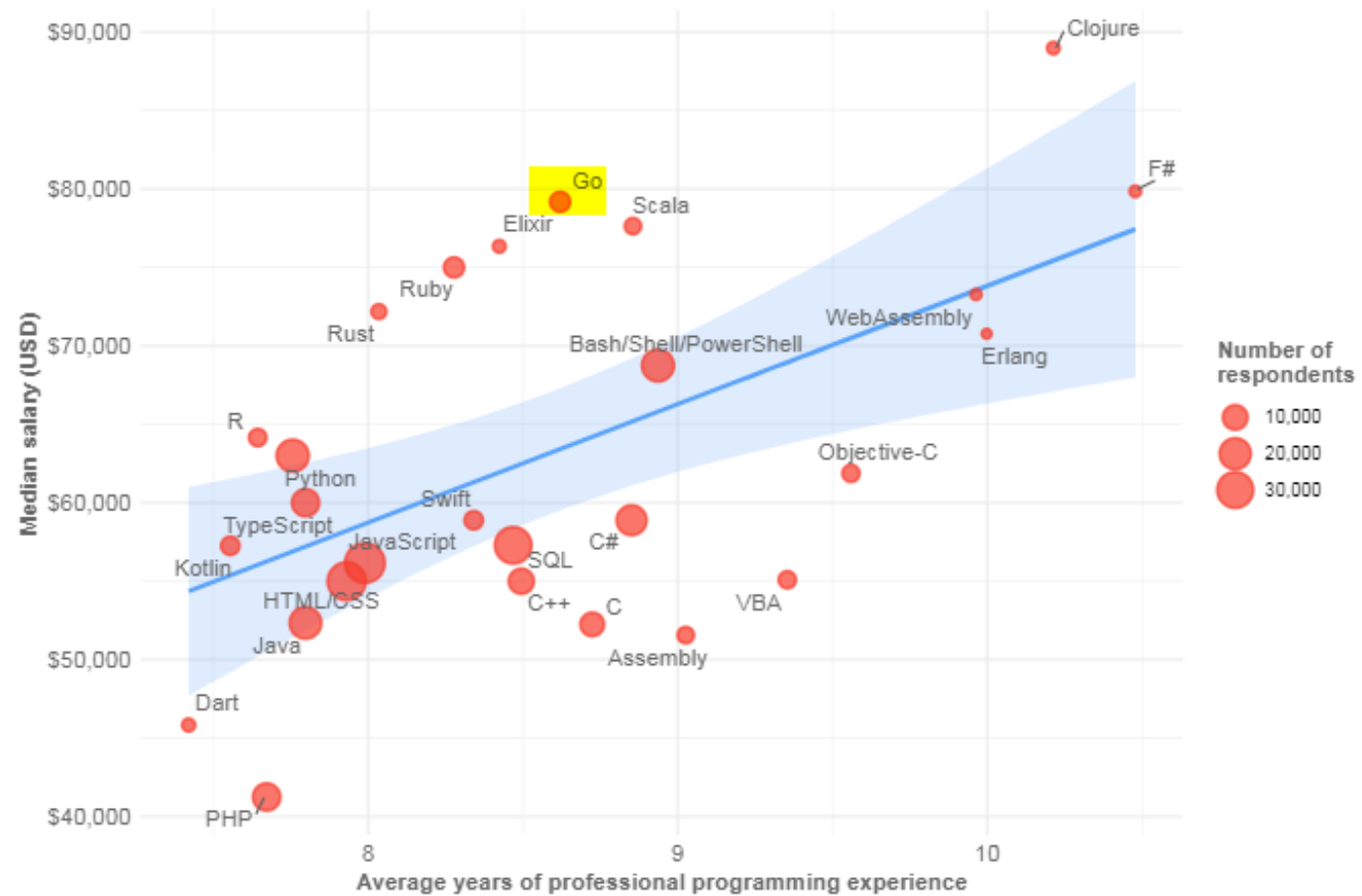
- Live video
 - Stability is up to YouTube and our ISPs
 - Much less interactive (5+ sec delay)
 - Learning is less intrinsic unfortunately
 - Only exception – learning to program
- Go assignments are brand new
 - Little time to prepare
 - Polly's learning with you (just slightly ahead)

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)

Tomorrow on YouTube

The Class Admin

Roadmap

- **The essentials**
- Administrative Information
- Content
 - Course objective and scope
 - Syllabus
- 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-20/>
- Polly Huang
 - <http://homepage.ntu.edu.tw/~pollyhuang>
 - Click the 'Teaching' link
 - Then, click the 'Spring 2020' under the 'Introduction to Computer Networks' category

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Lecture Info

- Location
 - YouTube for lectures
 - Google form for exams
- Time
 - Wednesday, 11:20-12:10;
 - Thursday, 10:20-11:10, 11:20-12:10
 - Please note that during the breaks the priority goes to the calls of nature. But feel free to type up questions if there are any.

The Instructor

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

Office Hour

- Thursday 12:10-1:00
 - Or by appointment
- Via FB Messenger
 - Polly's a member of the FB group

The TA

- Caleb Wang
 - Office: BL, Room 621
 - Email: b04901118@ntu.edu.tw

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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: 1st Half

- 01 03/04- Class Admin, Overview
- 02 03/11- Overview (PA#1)
- 03 03/18- Application Layer (PA#2)
- 04 03/25- Application Layer (PA#3)
- 05 04/01- Application Layer (PA#4)
- 06 04/08- Transport Layer (PA#5)
- 07 04/15- Transport Layer (PA#6)
- **08 04/22- Midterm Examination**

Syllabus+Schedule: 2nd Half

- 09 04/29- Transport Layer
- 10 05/06- Transport Layer (PA#7)
- 11 05/13- Network Layer
- 12 05/20- Network Layer (PA#8)
- 13 05/27- Network Layer
- 14 06/03- Network Layer (PA#9)
- 15 06/10- Link Layer
- **16 06/17- Final Examination**

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- **Your responsibility & Grading policy**
 - Homework
 - Quiz & Class participation
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Grading

- Homework
 - Programming assignments (35%)
- Interaction
 - Take-home quiz (20%)
 - Participation (5%)
- Exams
 - Midterm (20%)
 - Final (20%)

Team vs. Individual

- Teamwork
 - Programming assignments (35%)
 - Take-home quiz (20%)
- Individual
 - Participation (5%)
 - Midterm (20%)
 - Final (20%)

Team Up – Loners Allowed

- 1-3 students per team
 - No more
- Same members for
 - Programming Assignment
 - Take-home 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
- **Late programming assignment penalty**
 - ~1hrs: -10%
 - ~6hrs: -20%
 - ~12hrs: -40%
 - ~24hrs: -80%
 - **Otherwise: -100%**

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

Take-Home Quiz



- Random quiz
 - Problem related to the topics of the week
 - Given time to work off class
 - Posted on FB as a pic
- To fulfill this requirement
 - Post your solutions as a comment under the quiz pic (state the team# and by next Friday 18:00)
 - First or unique sharing get extra participation points
 - Graded on completion rate

Class Participation

- Interaction counts
 - Remember to identify yourself
- Interaction includes
 - Interacting over FB/YT/email
 - Interacting with TA/polly
 - ‘likes’, ‘greetings’ count but less
- Graded on curve (scale to min/max of the class)

Exams

- **1 Midterm (20%)**
- **1 Final (20%)**
- In Q&A form
- Old exams available from the class page
- **No early/makeup exams**
 - **Many sorries to exchange students who need to leave early for the summer quarter at home universities**

Integrity

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

Gentle Reminder:

Polly is not nice!

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Class Material

- Textbook

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

James F. Kurose & Keith W. Ross

- Go reference book

An Introduction to Programming in Go

Caleb Doxsey

Additional Material

- Lecture slides in pdf format
- YouTube videos
- Available from the course page

Which is again here:



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Questions?

Or join the Facebook group and post!

Quiz Time!