ISE 314X
Computer Programing for Engineers

Introduction

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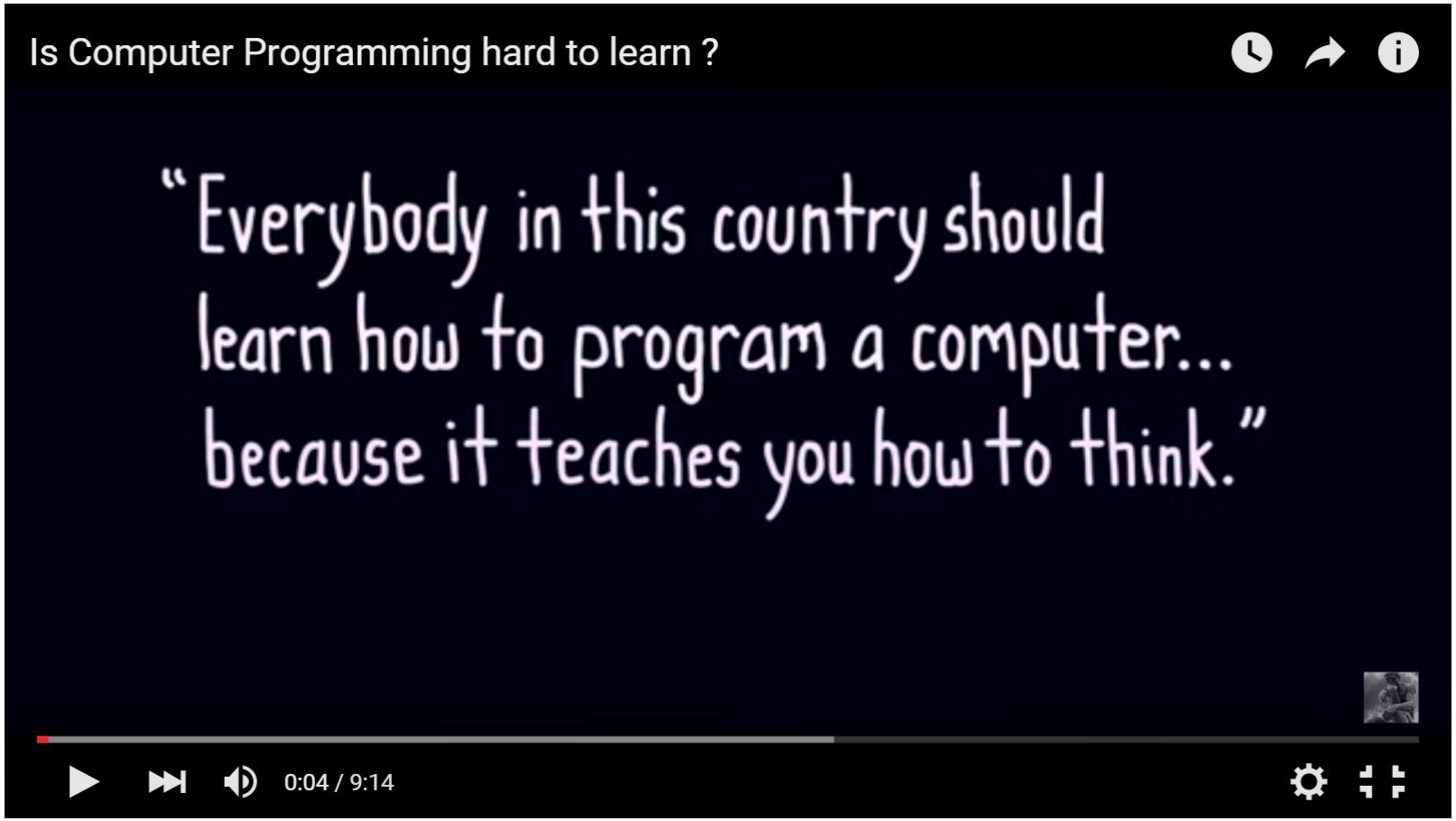
Tentative Syllabus

Questions?

Why Should We Learn Computer Programming?



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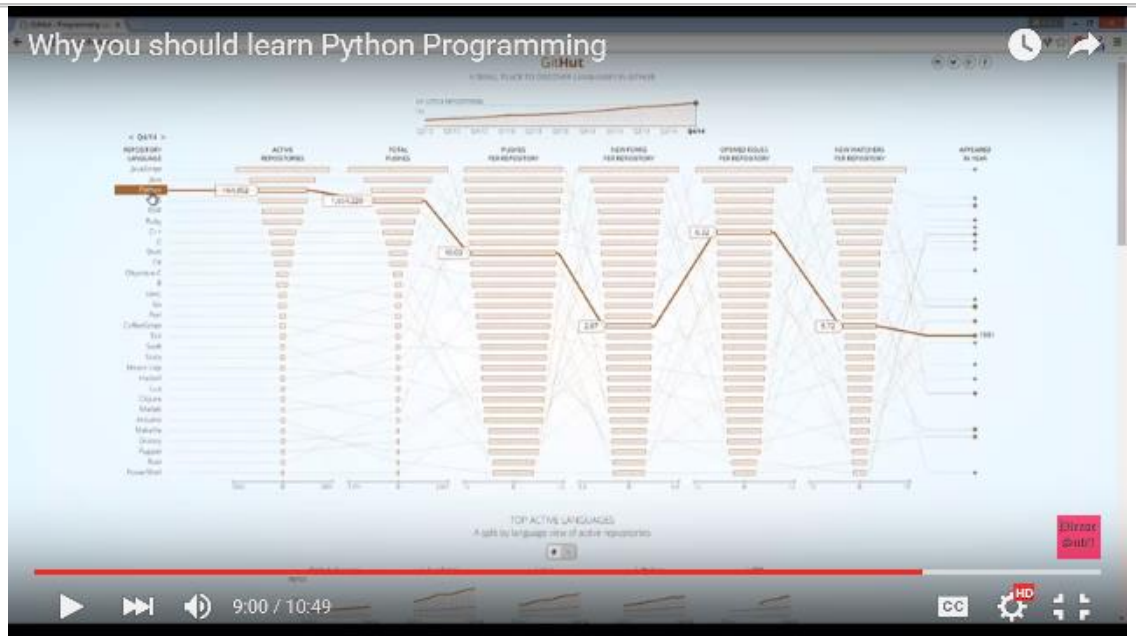
What is Python?



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- What is python?
- Who invented python?
- What companies use python?
- What are the advantages over Java, C, C++, and C#?

Popularity of Python

- TIOBE Index
- IEEE Spectrum
- TopProgrammingLanguages (Difficulty level)
- Association for Computing Machinery (ACM)
  - Python bumps off Java as top learning language
  - Eight out of the top 10 universities now use Python to introduce programming
- Job Outlook: Indeed.com

Relations to Other Computing Courses

ISE 212 Engineering Computing (Matlab & Labview, manufacturing process automation)

ISE 314 Computer Programming for I&S Engineers (Python for scientific computing)

ISE 370 Industrial Automation and Control (Pro-E, AutoCAD)

ISE 419 Applied soft computing (Fuzzy Logic, Genetic Algorithm, ANN)

ISE 421 Modeling and Simulation (Arena, Simio)

Aid Your Learning of Other Courses

General Education	Calculus, Linear Algebra
ISE 261&362	Probabilistic Systems I&II
ISE 320&420	Operations Research I&II
ISE 363	Designing with Experiments
ISE 491&492	Systems Design & Projects

Install Anaconda

- Anaconda is a free Python distribution
- It includes more than 300 of the most popular Python packages for science, math, engineering, and data analysis

Install Anaconda

- To download and install anaconda, follow the link https://www.continuum.io/downloads
- To run python, in the command-line window, type in `python` and hit <enter>

Get Started with Python

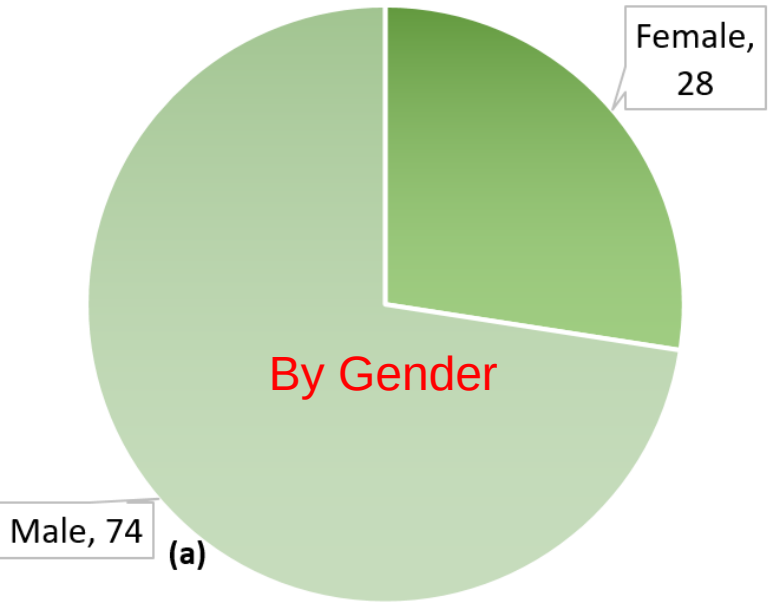
- Several different ways to start the python programming environment
  - Command window
  - IDLE
  - Jupyter Notebook

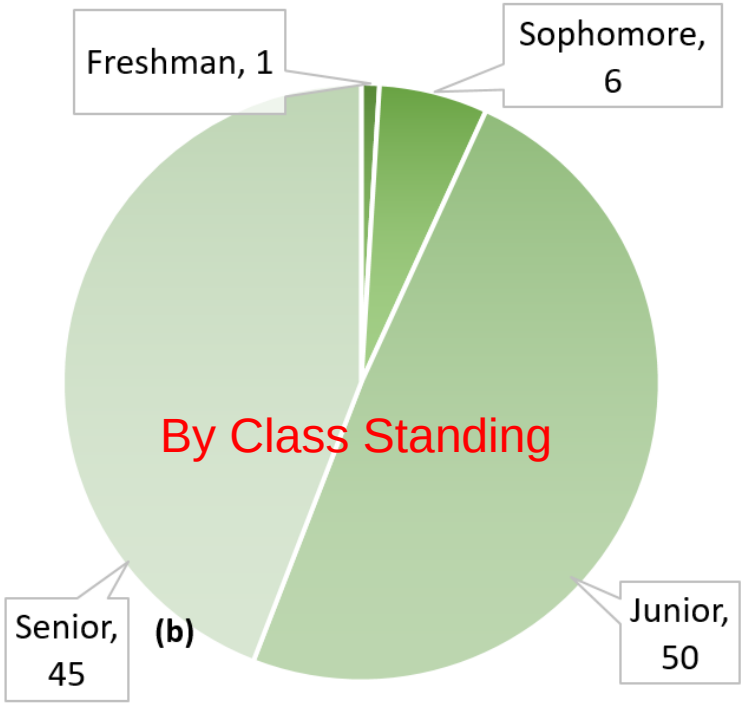
Self Introduction

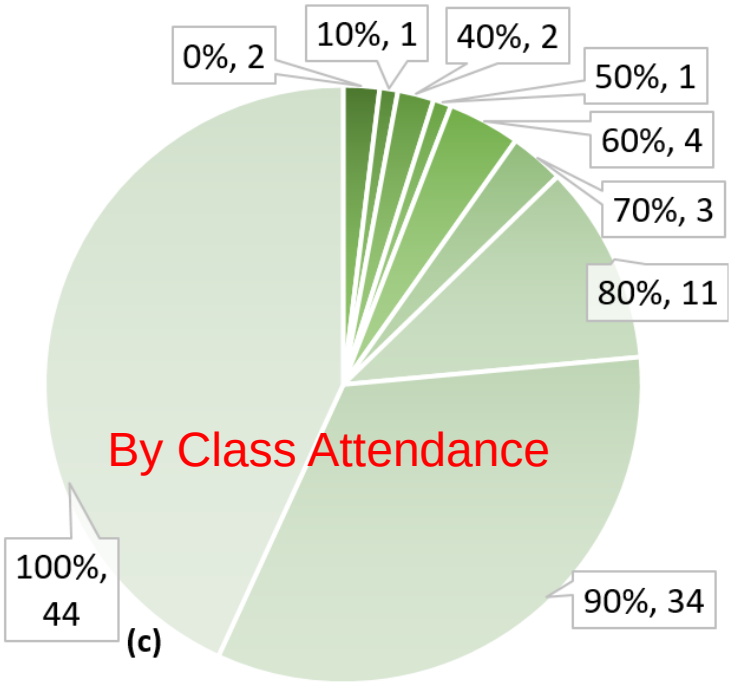
- Name
- Class Standing (Freshman, Sophomore, Junior, Senior)
- Department / Major

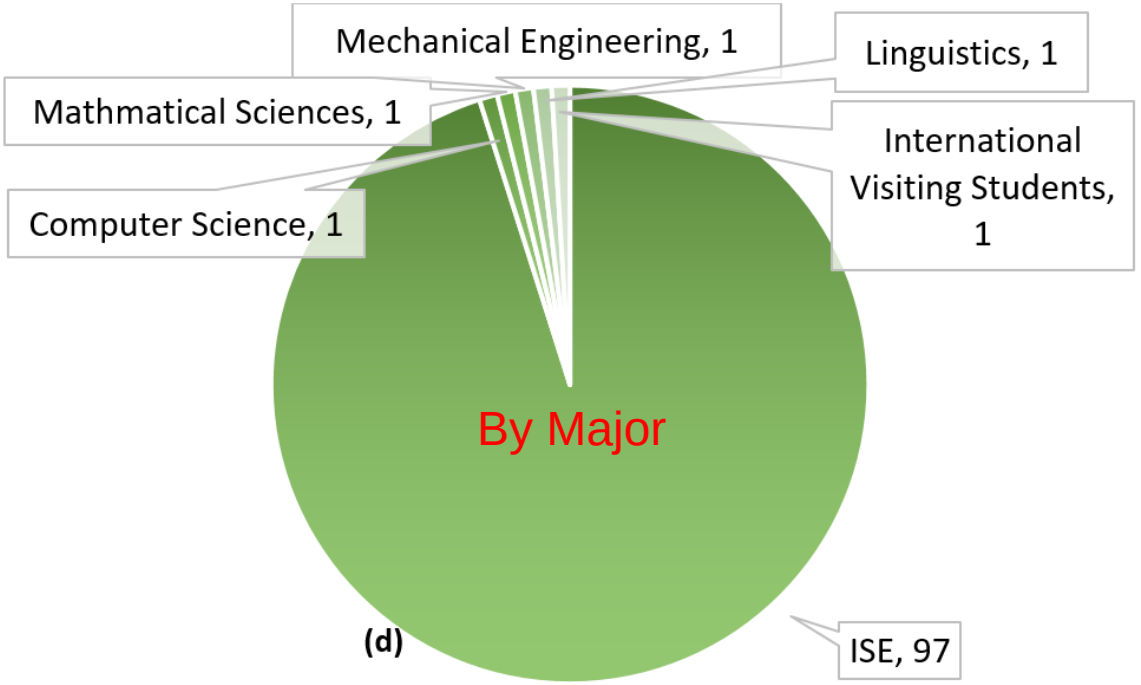
Statistics from Last Year

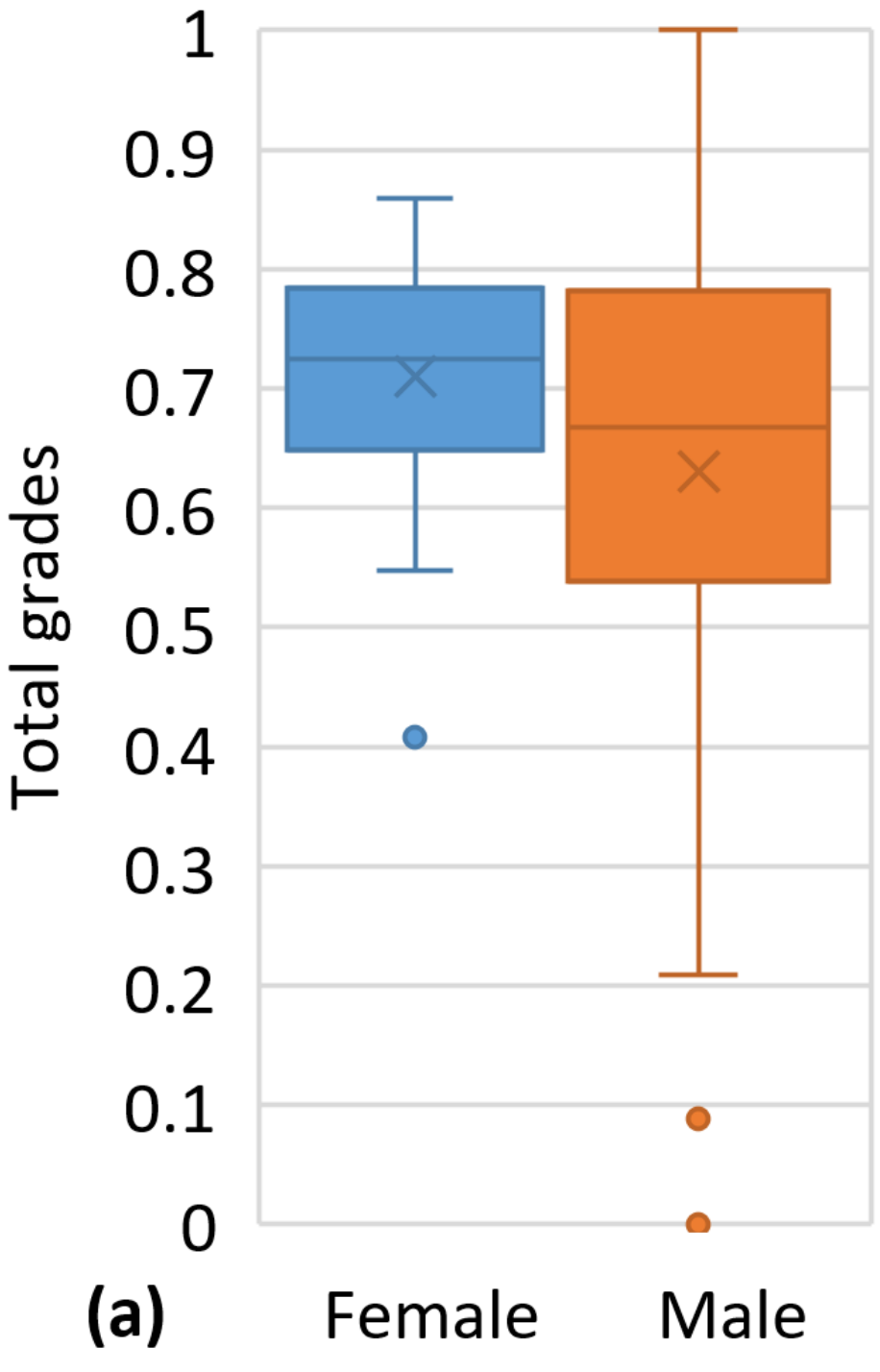
- Yong Wang, Kasey J. Hill, Erin C. Foley. (2017). Computer programming with Python for industrial and systems engineers: Perspectives from an instructor and students. Computer Applications in Engineering Education, In Press. [Link]


Female, 28
By Gender
Male, 74
(a)

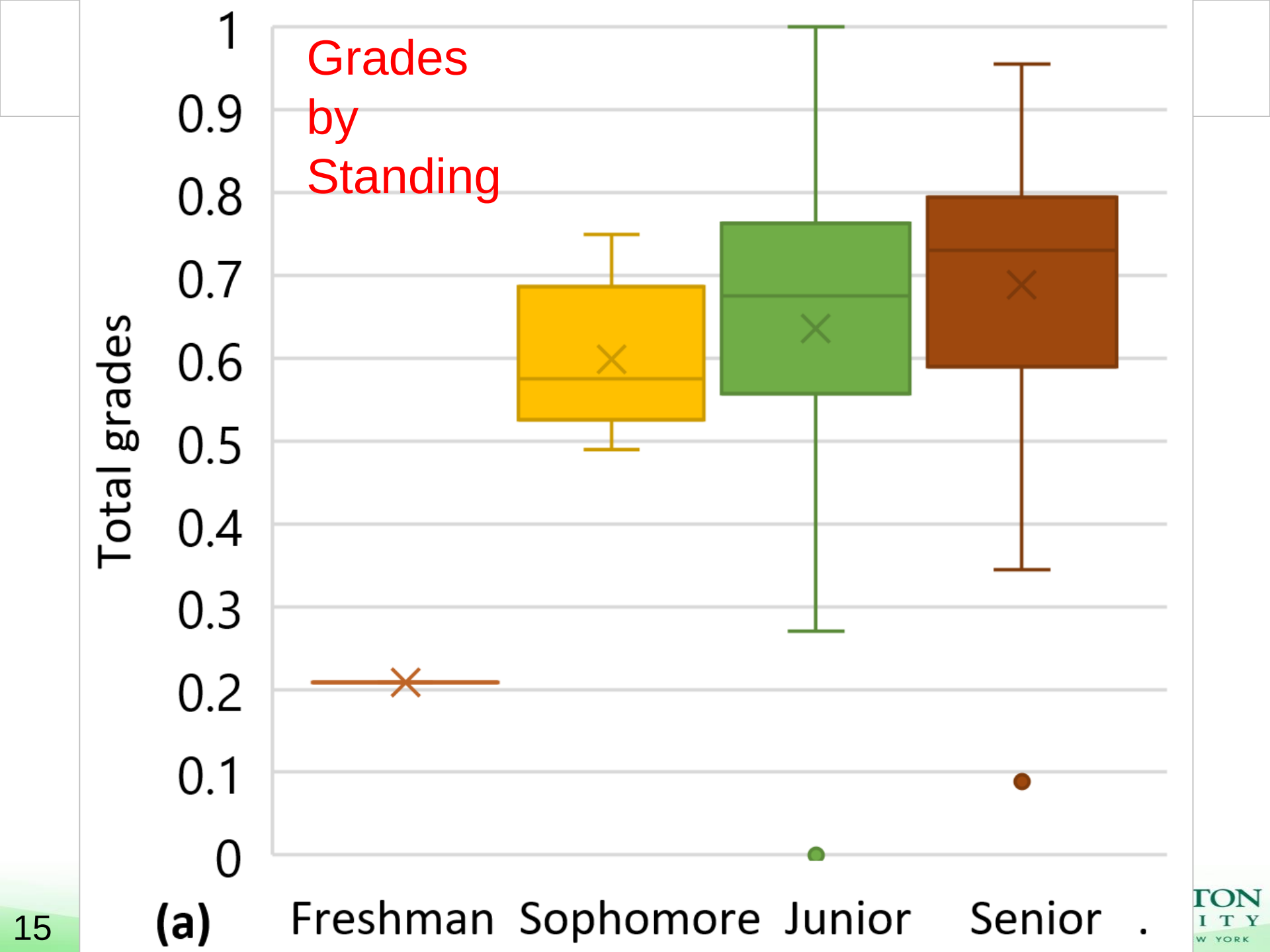

Freshman, 1
Sophomore, 6
By Class Standing
Senior, 45
(b)
Junior, 50

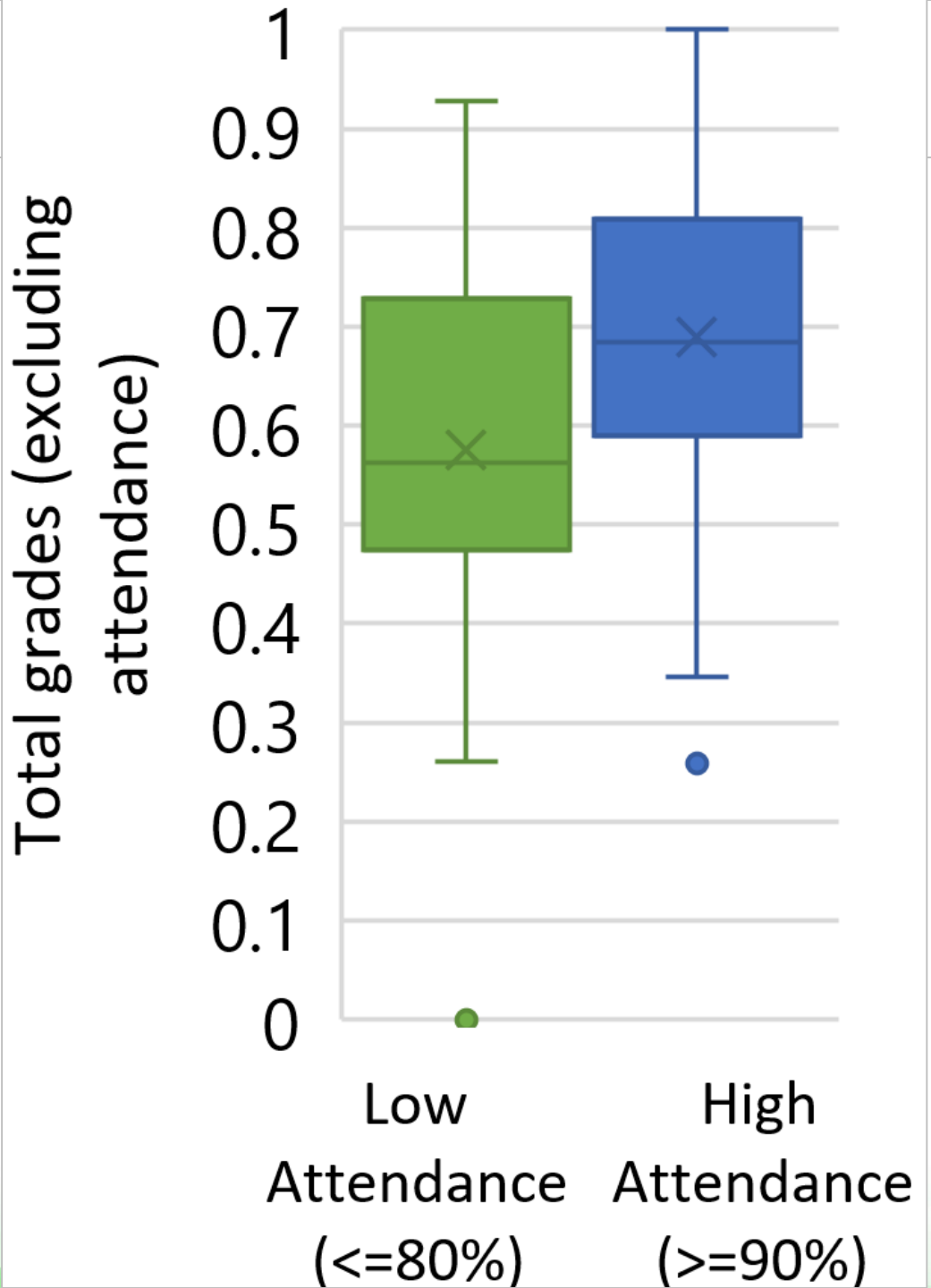

0%, 2
10%, 1
40%, 2
50%, 1
60%, 4
70%, 3
80%, 11
By Class Attendance
100%, 44
90%, 34
(c)


Mechanical Engineering, 1
Linguistics, 1
Mathmatical Sciences, 1
International Visiting Students, 1
Computer Science, 1
By Major
(d)
ISE, 97



Grades by Gender


Grades by Standing
Total grades
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
(a)
Freshman
Sophomore
Junior
Senior



Grades by Attendance