Lecture 12.1 – Final Review

The great aim of education is not knowledge but action.

-- Herbert Spencer

CS 230
Ethical Issues in Computing
Fall 2020
Dr. Henderson
BSU

Announcements

- LA-9 Due Thursday
  - Quiz
  - Video Post (remember to submit in BB)
  - Retakes open Friday morning
- Oral Presentation Team meetings next week

Last Time

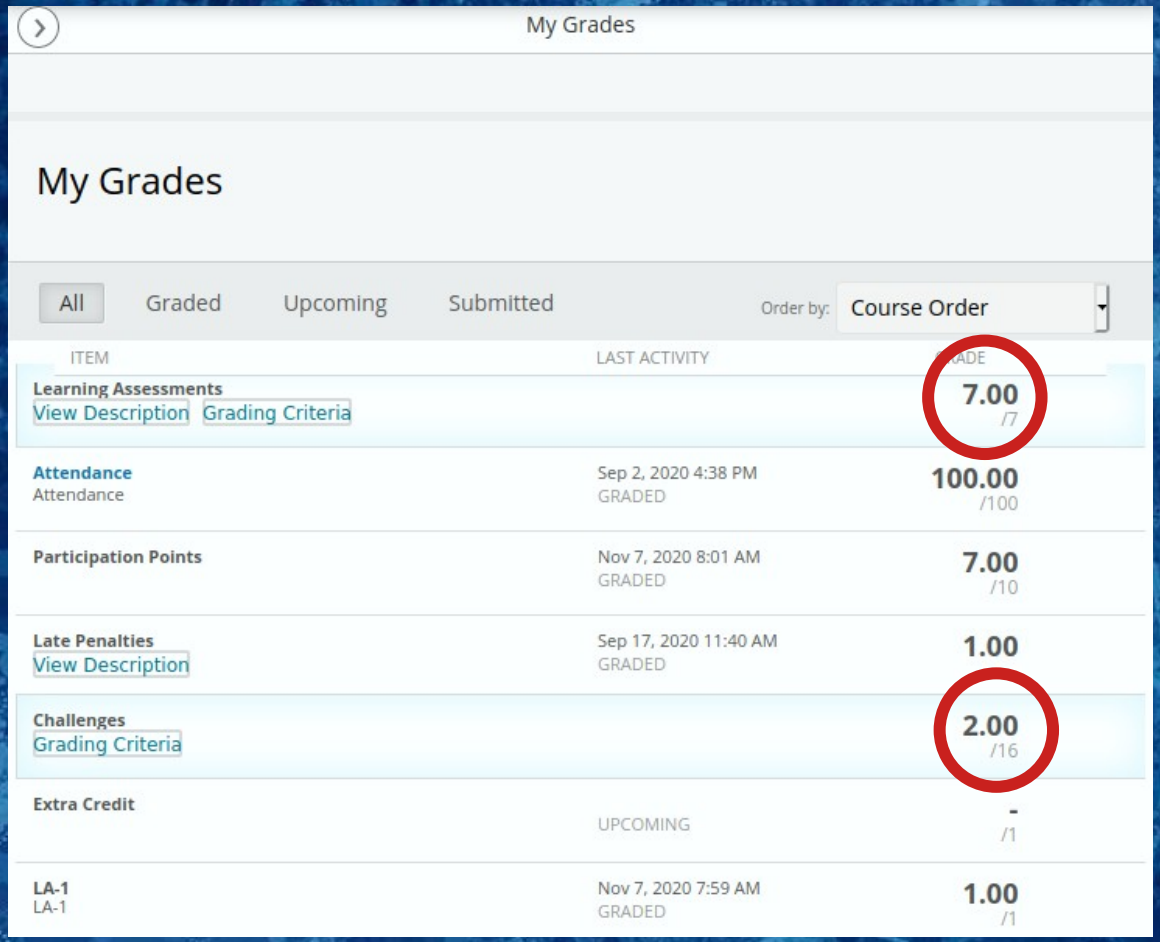
- SECEPP Case Studies
- Whistleblowing
  - Challenger

Today

- Sample grade calculation
- Review for final exam

Grade Calculation Example

Grade	Learning Assessments	Challenges
A	**all**	**5** or more
B	**7** or more	**3** or more
C	**5** or more	**2** or more
D	**4** or more	

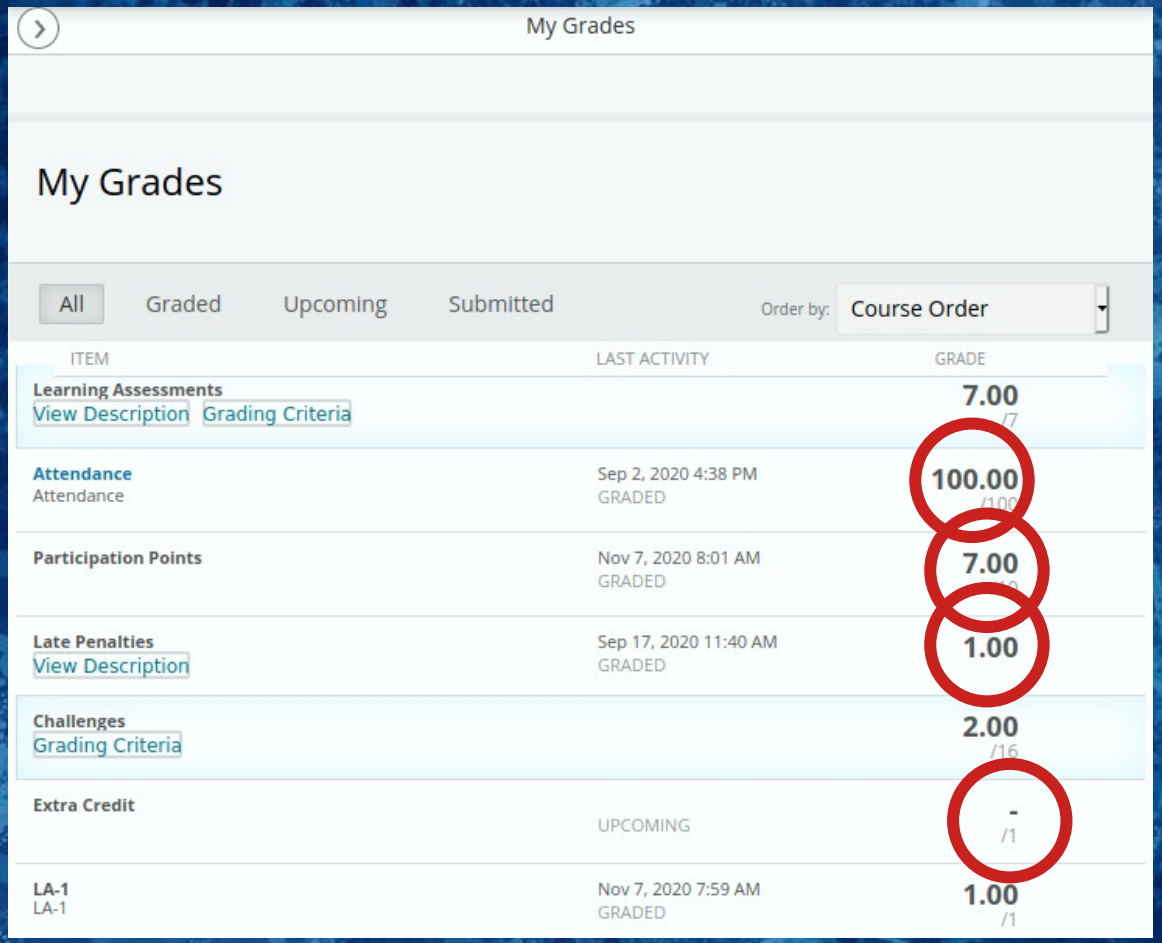


Learning Assessments: 7
Challenges: 2

Base Grade: C

Grade Calculation Example

Adjustment	Oral		Exam Score		Attendance	Participation Points
plus	85% or better	**or**	85% or better	**and**	85% or better	7 or more
minus			50% - 70%	**or**	50% or worse	3 or less
down one whole grade	50% or worse	**or**	50% or worse	**or**	30% or worse	



Learning Assessments: 7
Challenges: 2

Base Grade: C

Attendance: 100
Participation Points: 7
Late Penalties: -1
Extra Credit: 0
Total Participation: 6

Adjustment: None

Final Exam

- 50 questions (150pts)
  - 120 minutes
  - 18 Short Answer (5-6pts)
  - 1 Short Essay (15pts)
  - 26 Multiple Choice/Answer/Matching (1/2/2pts)
  - 5 True/False (1pts)
- Options
  - Take during classtime 11/19 – no 2nd Team
  - Take on own time due Wed 11/25

LA1: Identify ethical issues in applications of computer technology

- Societies benefit individuals
- Rules are needed for society
- Morality is the code of conduct for a particular society
- Ethics is the systematic study of morality
- Ethical Point of View is showing respect for the needs and desires of others by playing by the rules
- Ethical issues involve a voluntary action by a moral agent with potential to affect society

LA2: Analyze the morality of actions using classical ethical theories

- Ethical theories allow us to analyze the morality of actions
- Non-workable theories prevent a rational analysis
  - Relativism – subjective and not rational
  - Divine Command Theory – not rational
  - Egoism – does not use Ethical Point of View
- Workable Theories
  - Kantianism – deontological (duty), Categorical Imperative
  - Utilitaianism – consequentialist, Principle of Utility
  - Social Contract Theory – rights, Principles of Justice
    - Rights can be absolute or limited, negative or positive
  - Virtue Ethics – agentive, character determines right action

LA3: Express ethical arguments in written and verbal communication

- Identify the action
- Identify the agent
- Identify the consequences
- Analyze the morality using an accepted theory
- Formulate an argument based on the analysis

LA4: Explain the challenges electronic information has introduced to political issues such as free speech

- Information Technology brings unique threats to society
  - Cyberbullying, stalking
  - Phishing, scamming
  - Predators
  - False Information
  - Identity Theft
  - Internet addiction
- Internet has many benefits but difficult to mitigate harms
  - Many-to-many connections (decentralized)
  - Dynamic
  - Huge
  - Global
  - Anonymity
- US 1st amendment not absolute
  - Balanced against public good
- Direct- and Self- Censorship problematic on the Internet
  - No central point for filtering, dynamic nodes, cannot enforce restrictions (age requirements, etc.)

LA5: Recognize intellectual property and its protections

- Digital a unique problem for IP
  - Perfect copies for zero cost
  - Easy to reproduce
- Copyright automatically applied to original work
  - Music, art, writing, software
  - Gives creator control over how the work is used, copied and redistributed
  - Fair use allowed without permission under certain circumstances
- Patents protect functional ideas, not form of implementations
- Plagiarism is deliberate copying from others without giving credit

LA6: Utilize available licensing options to create, protect, and legally use, software

- Free and Open Source Software
  - Benefits society
    - Everyone can help improve
    - Faster software evolution
    - Allows sharing for free
    - Lets companies focus on service
  - Free Software Foundation FSF
    - Allows run, mod, share
    - Share-alike means perpetuating license
  - Open Source initiative
    - Less restrictive than FSF
    - Allows sub-licensing in some cases
    - MIT, BSD, Apache, etc.
- Creative Commons provides free licenses for creative works
  - Makes using content in derived works frictionless

LA7: Explain the unique threat to privacy introduced by applications of computer technology

- Privacy increasingly under threat
  - Government using Information Technology making public access easier
    - Birth, marriage certificates, driver license, property records, criminal records, etc.
  - Voluntary disclosure of personal info
    - Social posts, blog posts, loyalty programs, RFID scanners, mobile apps, web surfing, medical records, etc.
  - Companies mining our data to build detailed profiles
    - Secondary use is mining data collected for another purpose
  - Government Surveillance
    - CCTV, license plate scanners, drones, NSA wiretaps, etc.

LA8: Adopt best practices for mitigating threats to computer security

- Malware predominately sent through e-mail
  - Virus, trojans, ransomware, rootkits, spyware, bots
- Social engineering targets human
  - Phishing,smishing,vishing,whaling
- DoS attacks take down a resource by overwhelming it
- Botnets starting to use IoT devices
  - Typically weak security protections
  - Often use open wifi
- Password crackers exploit any patterns or regularity
  - True randomness difficult to achieve in a password
- Password entropy
  - $H = L \log 2 N$

LA9: Commit to a professional code of ethics

- Identify relevant principles
- Select all applicable clauses
- Determine alignment
  - All clauses align => strong moral case
  - Mixed alignment => use judgment

LA9: Commit to a professional code of ethics

- Sample Problem:
- Co. X building a dating website hires Co. Y to develop it
- Co. Y hires Gina as a private contractor to build the IM part of it
- Gina’s contract states she is not responsible for security of the site – Co. Y is responsible
- Co. Y behind schedule skimps on security so that msgs are in the clear
- Gina voices concerns to Co. Y
- Co. Y still plans to deliver software to Co. X without telling them of the insecurity
- Co. Y reminds Gina she is under non-disclosure

LA9: Commit to a professional code of ethics

- PUBLIC: act consistently with the public interest
- CLIENT AND EMPLOYER: act in the best interest of client and employer consistent with the public interest
- PRODUCT: ensure that products and related modifications meet the highest professional standards possible
- JUDGMENT: maintain integrity and independence in professional judgment
- MANAGEMENT: managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance
- PROFESSION: advance the integrity and reputation of the profession consistent with the public interest
- COLLEAGUES: be fair to and supportive of colleagues
- SELF: participate in lifelong learning regarding the practice and promote an ethical approach to the practice

Final Exam Date Poll

Next Time