19.10.20 20:32

# CSCI 101
# Connecting with Computer Science
# Conducting Research

Jetic Gū

2020 Fall Semester (S3)

# Overview

- Focus: Computing Science in Production
- Architecture: von Neumann
- Readings: None
- Core Ideas:
    1. Announcement: M$ Team
    2. What to look for when researching online
    3. The rest: Group formation time!

P1
Announcement

# Announcement

- I’ve decided to make LaTeX optional (but still recommended)
  - It is a very good tool that can help you easily write beautiful professional documents
  - https://www.latex-tutorial.com/tutorials/
- We are going to use Micro$oft Team for this Course, I already added everyone here to
  `Jetic’s CSCI101 (Fall 2020)`
  If you have questions, please let me know ASAP

Concept

P1
Announcement

# Announcement

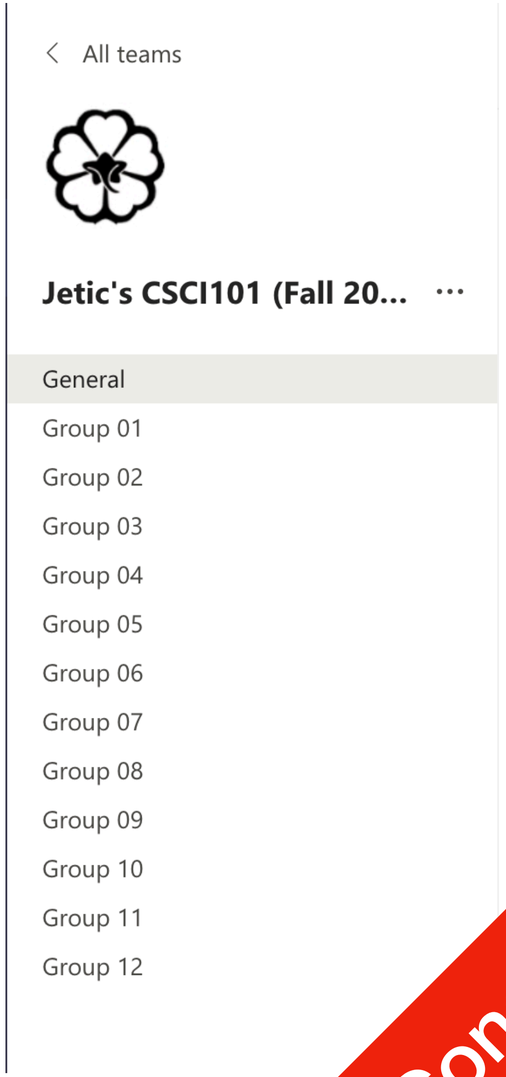
- Group formation
  1. Read LS13
  2. Formation on your own (**Recommended**)
     - please find a Group in Team without anyone else
     - all members should join this room
     - submit Group ID, Member info, Topic Proposal on the Topic Survey
  3. Formation by assignment

Concept

P1
Announcement

# Announcement

- Group formation
  1. Read LS13
  2. Formation on your own (**Recommended**)
  3. Formation by assignment
     - Submit Topic Proposal with Group ID set to `By Assignment`
     - You will still need to submit 3 Topic Proposals



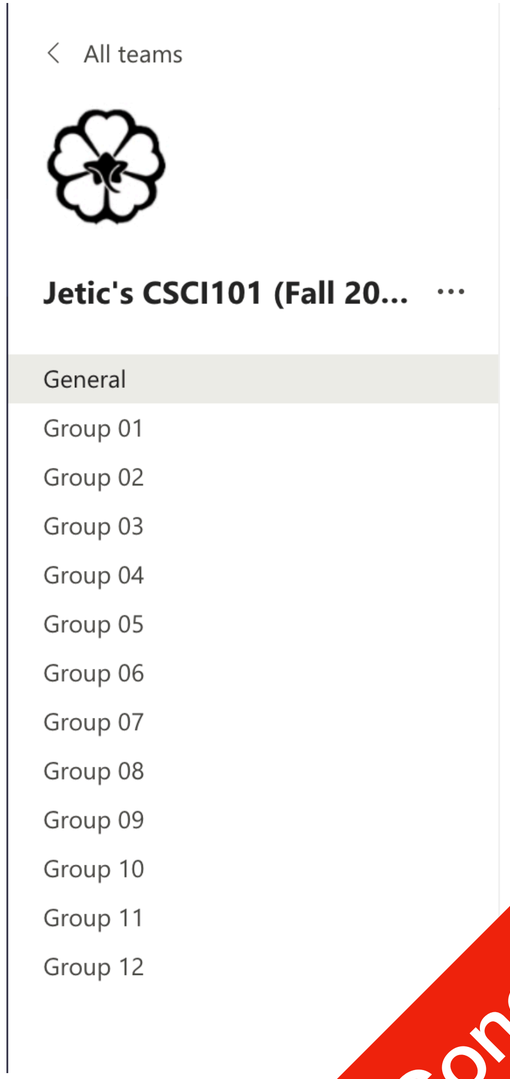

Concept

1. https://jetic.org/test/csci101-2020s3-group

P1
Announcement

# Announcement

- Today’s Agenda
  - This announcement
  - What to Look for When Researching Online
  - Group formation discussion
    - You ask me question, I answer
    - You DM other students, trying to form Groups




Concept

P2
Online Research

# whAt tO lOOk fOr whEn rEsEArchIng OnlInE

Don’t trust anyone that writes like above.

Summary

# The Three Types of Research

- Empirical Research
  - theories, experiments, and conclusions are presented

- Theoretical Research
  - theories, and proofs/predictions/analysis are presented (no experiment needed)
- Survey
  - summarise/categorises other papers

Majority of Paper in this class

Rules

P2
Online Research

# A Good Survey Project

- Step 1: collect a **large pile of information sources** to survey
- Step 2: based on initial readings, hypothesise an **organisation schema** (outline)
- Step 3: start reading, **organise all information** using this schema, filter out useless information, while adjusting the schema as you see fit
- Step 4: **add new info** to the "to be read" collection based on the adjusted schema, then **return to step 3**

Concept

P2
Online Research

# The Most Important Part

- Sources of your information!
  - News reports from trustworthy sources
    e.g. *BBC*, *Scientific America*, nothing from "Us" "People" paparazzo stuff in the supermarket
  - Academic Publications: Conference/Journal papers, books
    Use the college's library wisely
  - Another powerful tool: Google Scholar

Concept

P2
Online Research

# Good Databases for Papers

- Columbia College Library
  Yes!

- ACM Digital Library / IEEE Xplore / Springer / Others
  I have unlimited access to **Paid** stuff, if there's a **Paid** paper you want to read, send me the link and I can get it for you.
  **Don't send me links to Free Download Papers**

- Major Academic Conferences
  Most of the conference papers are free to download

Concept

P2
Online Research

# Organisation of a Good Survey

1. **Introduction**
   Compact introduction to what this survey is about

2. **Background**
   Introduce a bit of history/background knowledge

3. **List of Main Subjects**
   Usually a list of sub-fields, major events, products, and a detailed description of each of them

4. **Comparisons**
   Compare the subjects in part 3

5. **Conclusions**

Concept

P2
Online Research

# Organisation of a Good Theory Work

1. **Introduction**
   Compact introduction to what this work is about

2. **Background**
   History/background knowledge, including short survey on **Previous work**

3. **Your Theory**
   Present your novel theory, including proofs and reasonings

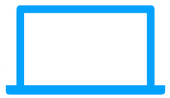
4. **Discussion**
   Why is your theory interesting? Convince others why your theory is valuable

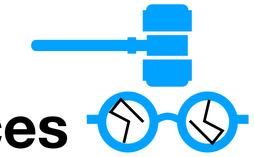
5. **Conclusions**

Concept

P2
Online Research

# Creation of Good Slides

- **Use computers** 
  NO handwritten stuff
- **Be Organised, Have Structure**
  I always have outlines
- **Don’t Read off Your Slides**
  Booooooooring
- **Be interactive when necessary**
  to avoid audience falling asleep

- **Avoid complete sentences** 
  Points, short phrases, and keywords
- **Use graphics**
  This isn’t ancient Rome
- **Avoid too much graphics**
  This isn’t a colour blindness test
- **Be Happy** 😄
  Make it pleasant

Concept

P3
Group Formation

AVOID THIS

Summary