SER 321 B Session

SI Session

Tuesday, April 29th 2025

10:00 am - 11:00 am MST

Agenda

{

Requested Material

Continued Review!

SI Session Expectations

Thanks for coming to the **SER 321** SI session. We have a packed agenda and we are going to try to get through as many of our planned example problems as possible. This session will be recorded and shared with others.

- If after this you want to see additional examples, please visit the drop-in tutoring center.
- We will post the link in the chat now and at the end of the session.
  - tutoring.asu.edu
- Please keep in mind we are recording this session and it will be made available for you to review 24-48 hours after this session concludes.
- Finally, please be respectful to each other during the session.

Interact with us:

Zoom Features

Zoom Chat

- Use the chat feature to interact with the presenter and respond to presenter's questions.
- Annotations are encouraged

SER 321
Exam Information

80 minutes

Similar to the quizzes

Make sure to look at the Study Guide!

Exam Info Page

Opens: Wednesday April 30th @ 12:30 AM

Closes: Friday May 2nd @ 11:59:59 PM

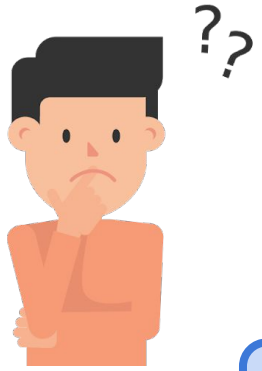
SER 321
Review Requests

It's ***not*** too late to make a topic request!

Drop a concept in the chat and we can cover it next!

SER 321

HTTP(s)



Stateful OR Stateless

Synchronous OR Asynchronous

Check out the recording for the discussion and solution!

SER 321
Serialization

Can we recall some of the formats?

Check out the recording for the discussion and solution!

JSON

Java Object Serialization

Protocol Buffers

XML

SER 321
Serialization

Binary

Text

Two main approaches for storing the content…

What about the data format?

Check out the recording for the discussion and solution!

JSON

Java Object Serialization

Protocol Buffers

XML

SER 321
Serialization

Binary

Text

Who uses ***TEXT***?

Check out the recording for the discussion and solution!

JSON

Java Object Serialization

Protocol Buffers

XML

SER 321
Serialization

Binary

Text

What does this imply?

Who uses ***BINARY***?

Check out the recording for the discussion and solution!

JSON

Java Object Serialization

Protocol Buffers

XML

org.json Docs

JSON Guide

SER 321

JSON Recognition

How many Objects?

How many Arrays?

How many Members?

Check out the recording for the discussion and solution!


```
{
  "lat": 42.3434,
  "lon": -88.0412,
  "timezone": "America/Chicago",
  "timezone_offset": -21600,
  "current": {
    "dt": 1733070576,
    "sunrise": 1733058144,
    "sunset": 1733091649,
    "temp": 18.57,
    "feels_like": 5.97,
    "pressure": 1025,
    "humidity": 63,
    "dew_point": 9.21,
    "uvi": 0.79,
    "clouds": 0,
    "visibility": 10000,
    "wind_speed": 14.97,
    "wind_deg": 280,
    "wind_gust": 21.85,
    "weather": [
      {
        "id": 800,
        "main": "Clear",
        "description": "clear sky",
        "icon": "01d"
      }
    ]
  }
}
```

SER 321
Serialization

Streams and their types

Generic Superclass

```
OutputStream out = sock.getOutputStream();
```

Buffered Stream

Bytes

Check out the recording for the discussion and solution!

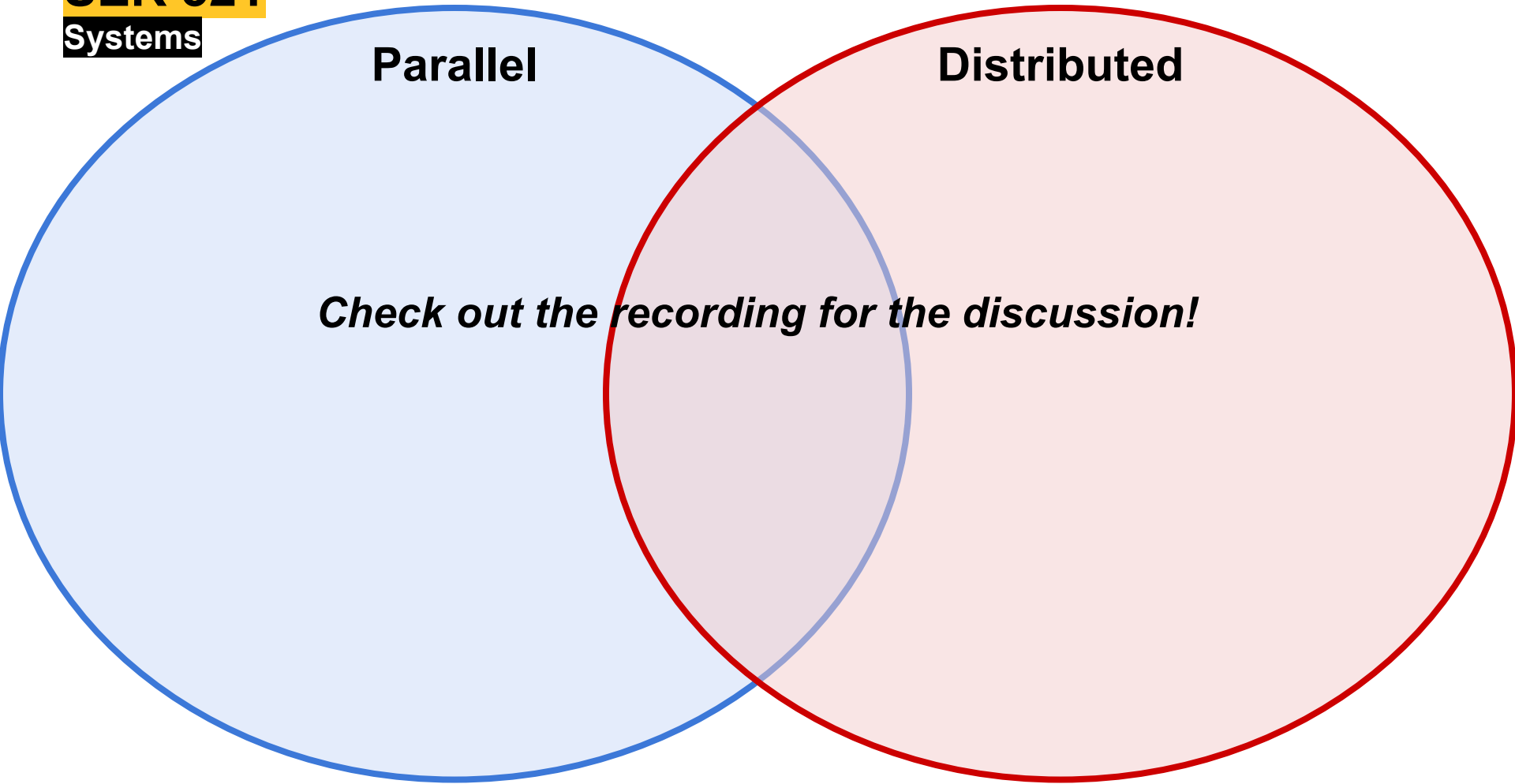
Data Stream

Primitive DATA Types

Object Stream

Java Objects

SER 321
Systems



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Systems

Check out the recording for the discussion!

Parallel

- Single computer
- Work split among different *processors*
- Memory is shared ***or*** distributed
- Communicate through *bus*
- Latency while waiting for resources

Both

- Work is partitioned
- Partitions processed individually
- ***Can*** improve performance
- ***Can*** improve speed
- Experience Latency

Distributed

- Many computers
- Work split among different *locations*
- Memory is distributed
- Communicate through *message passing*
- Experience latency both between nodes and within nodes

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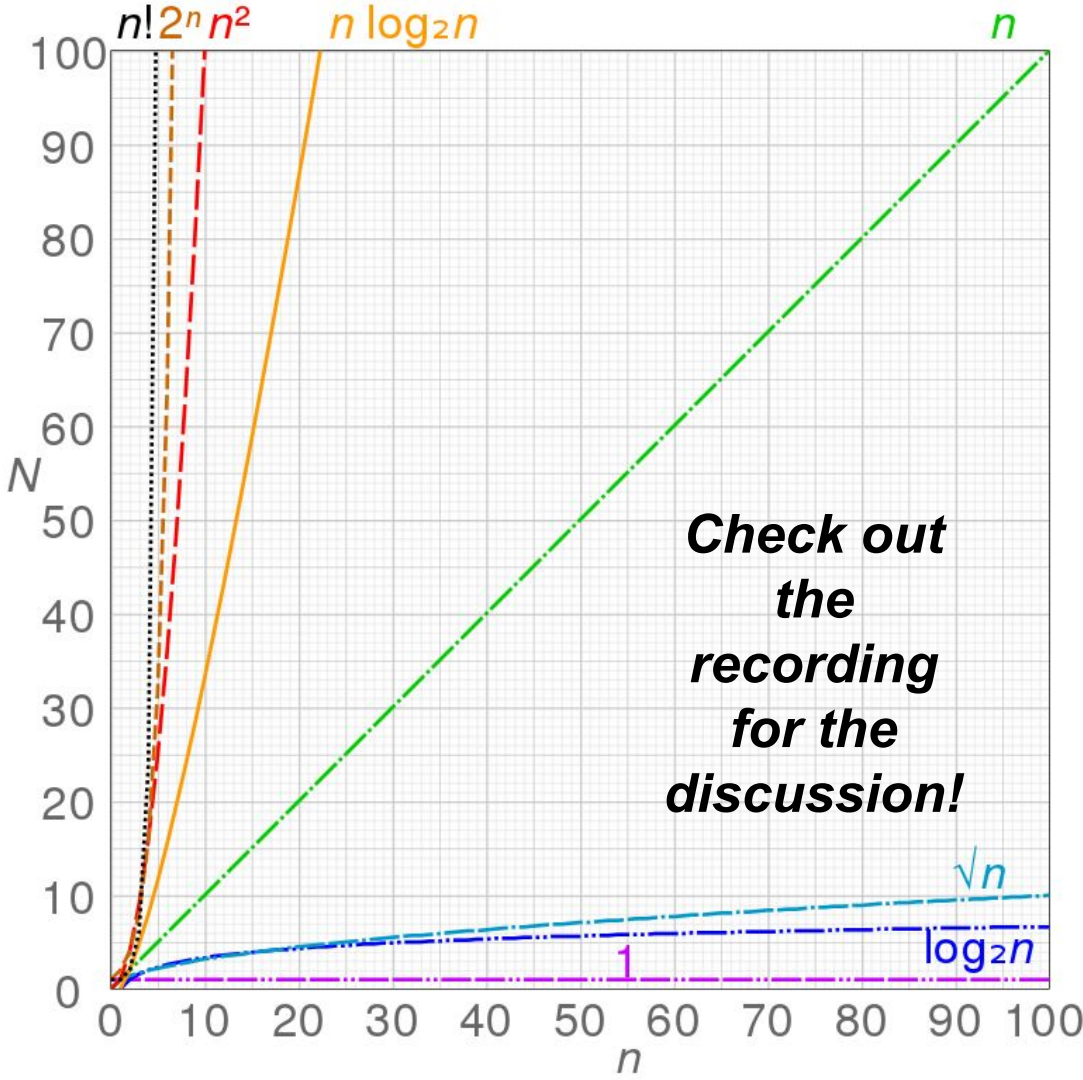
When to Distribute

When should we *consider* distributing?



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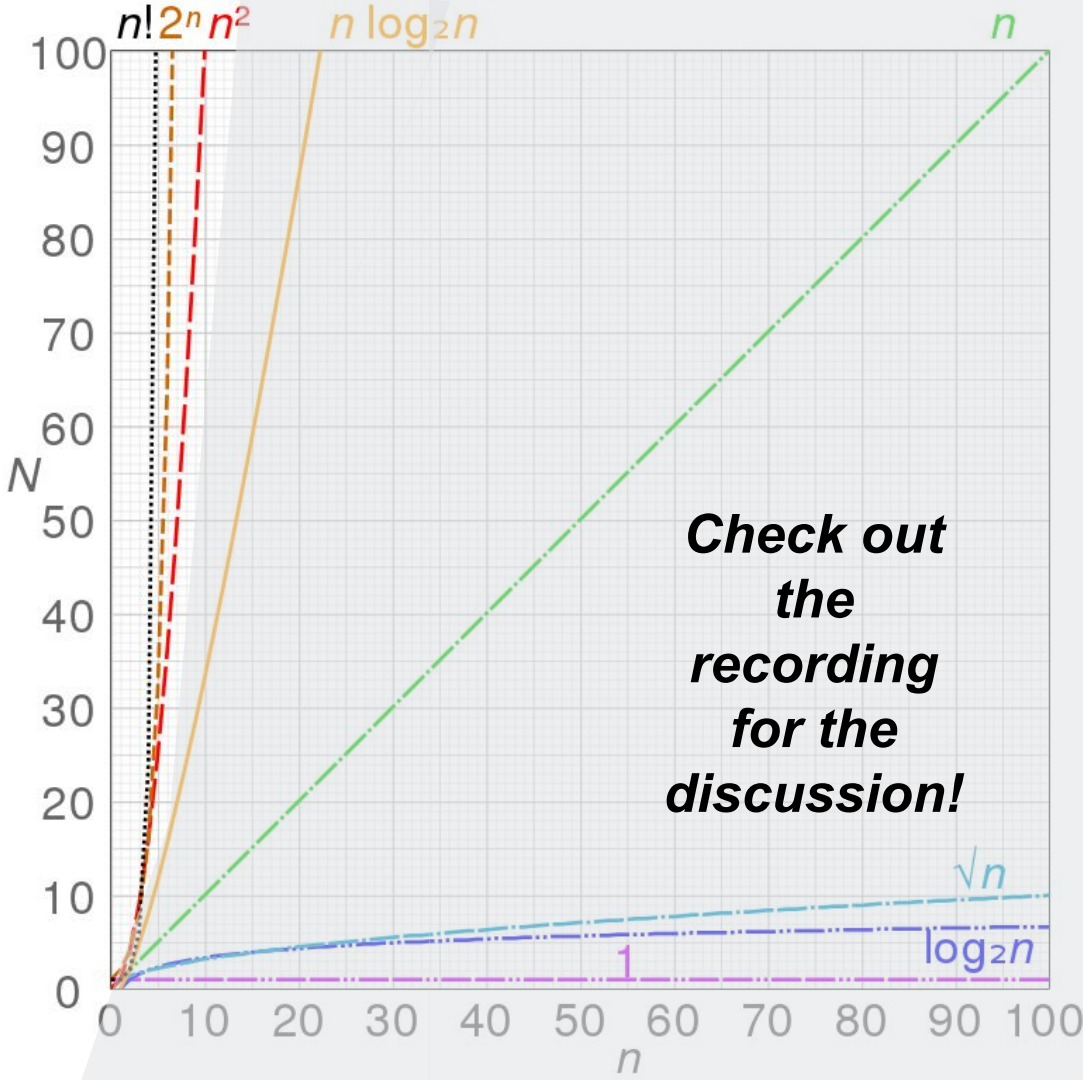
When to Distribute

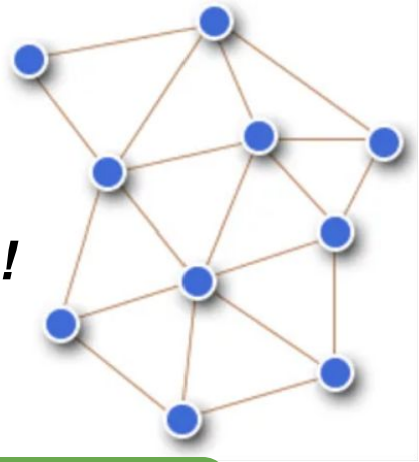
When should we *consider* distributing?

Super Duper Extra Extra Large Orders of Magnitude!



SER 321
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

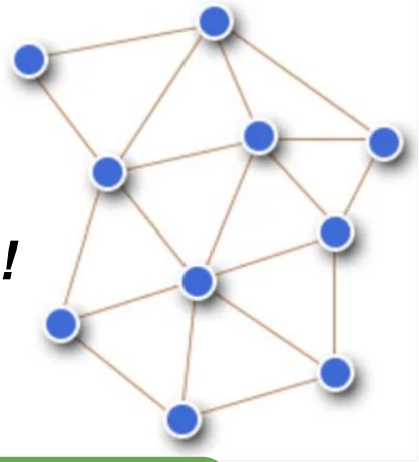
Global Clock

No! 👎

Yes! 👍

SER 321
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

Nodes Fail

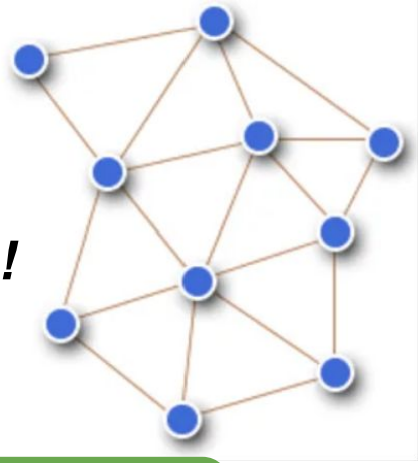
No! 👎

Yes! 👍

Global Clock

SER 321
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

Cluster Changes

No! 👎

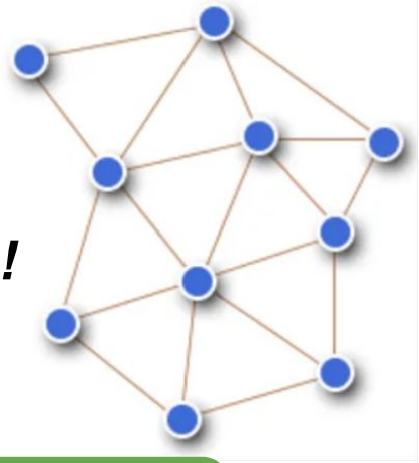
Global Clock

Yes! 👍

Nodes Fail

SER 321
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

Network is Reliable

No! 👎

Global Clock

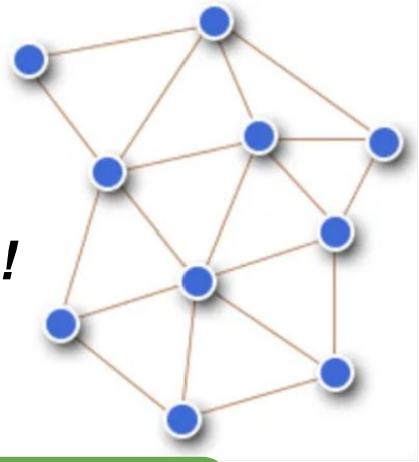
Yes! 👍

Nodes Fail

Cluster Changes

SER 321
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

Latency Never Exists

No! 👎

- Global Clock
- Network is Reliable

Yes! 👍

- Nodes Fail
- Cluster Changes

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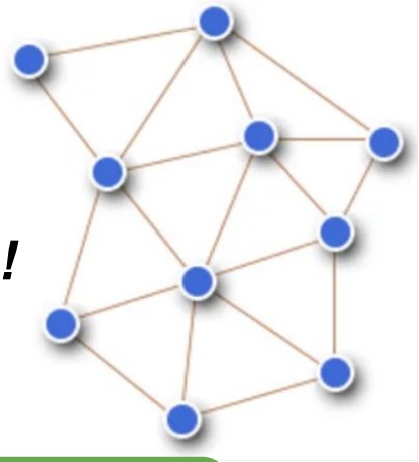
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

Path taken Changes

No! 👎

Global Clock

Network is Reliable

Latency Never Exists

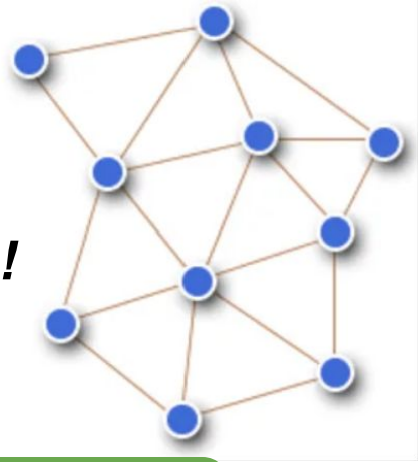
Yes! 👍

Nodes Fail

Cluster Changes

SER 321
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

Share Common Resources

No! 👎

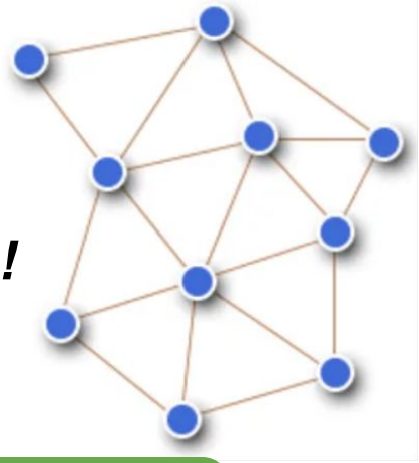
- Global Clock
- Network is Reliable
- Latency Never Exists

Yes! 👍

- Nodes Fail
- Cluster Changes
- Path taken Changes

SER 321
Distributed Systems

Distributed System Properties



Check out the recording for the discussion!

Pitfalls handled inherently

No! 👎

- Global Clock
- Network is Reliable
- Latency Never Exists

Yes! 👍

- Nodes Fail
- Cluster Changes
- Path taken Changes
- Share Common Resources

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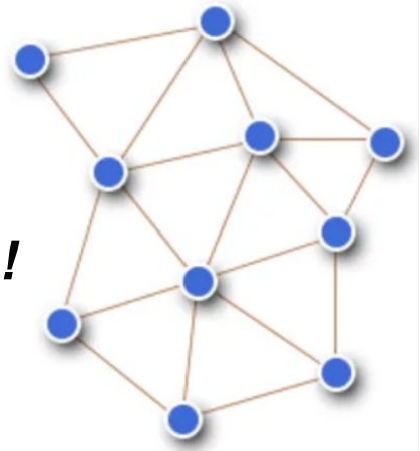
Distributed Systems

Distributed System Properties



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No! 👎

- Global Clock
- Network is Reliable
- Latency Never Exists
- Pitfalls handled inherently

Yes! 👍

- Nodes Fail
- Cluster Changes
- Path taken Changes
- Share Common Resources

SER 321

Scratch Space

Upcoming Events

SI Sessions:

- ~~Tuesday, April 29th, at 10:00 am MST - **Q&A Session**~~

Review Sessions:

- ~~Sunday, April 27th at **6:00 pm** MST - **2 hour Exam Review Session**~~
- ~~Tuesday, April 29th, at 10:00 am MST - **Q&A Session**~~

FINAL EXAM SCHEDULE:

Opens: Wednesday April 30th @ 12:30 AM

Closes: Friday May 2nd @ 11:59:59 PM

Questions?

Survey:

https://asuasn.info/ASNSurvey

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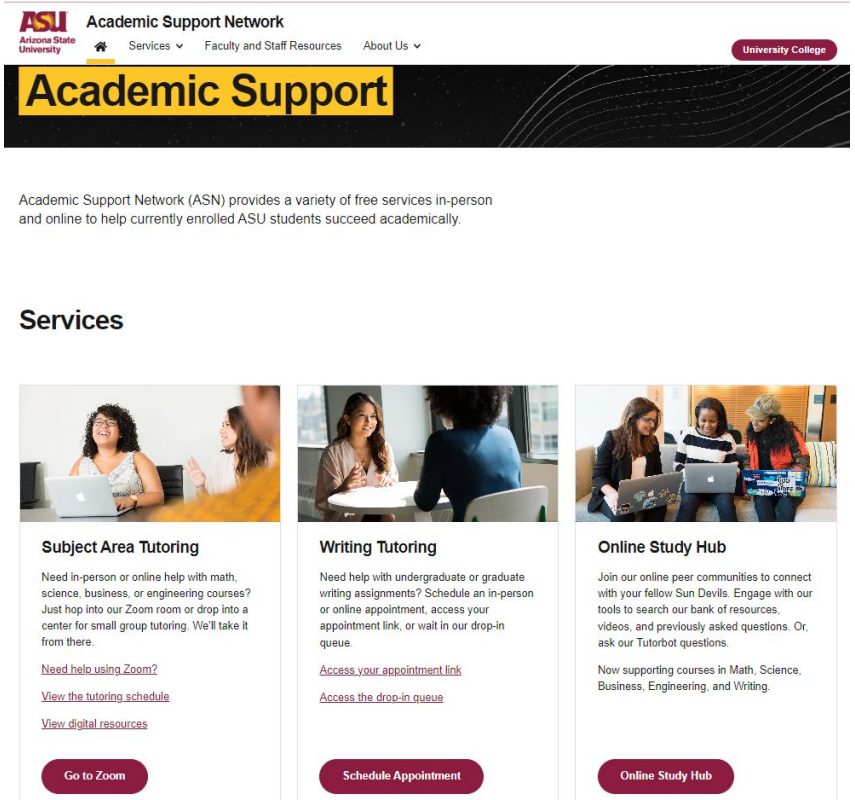
More Questions?

Check out our other resources!

tutoring.asu.edu

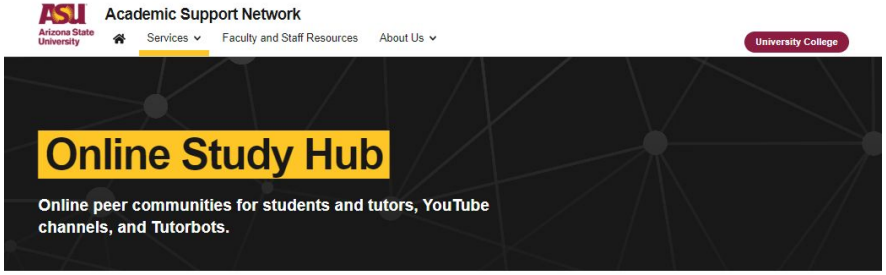


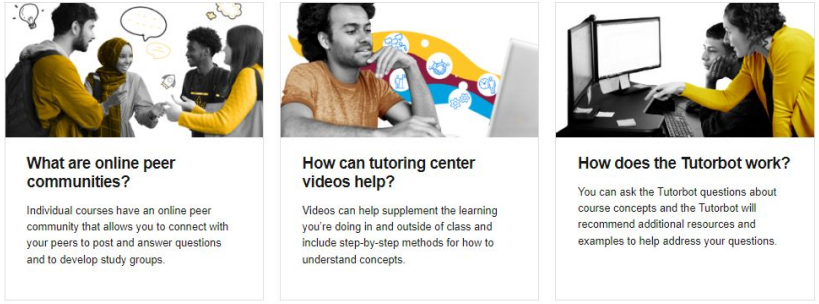
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

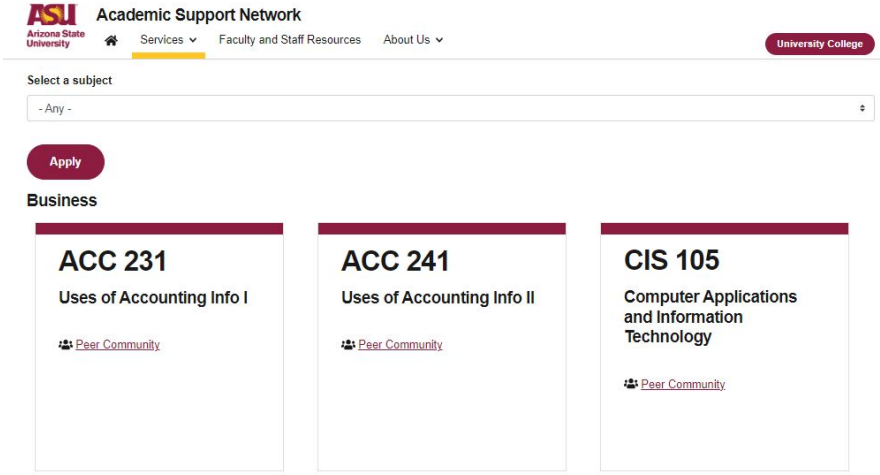
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub



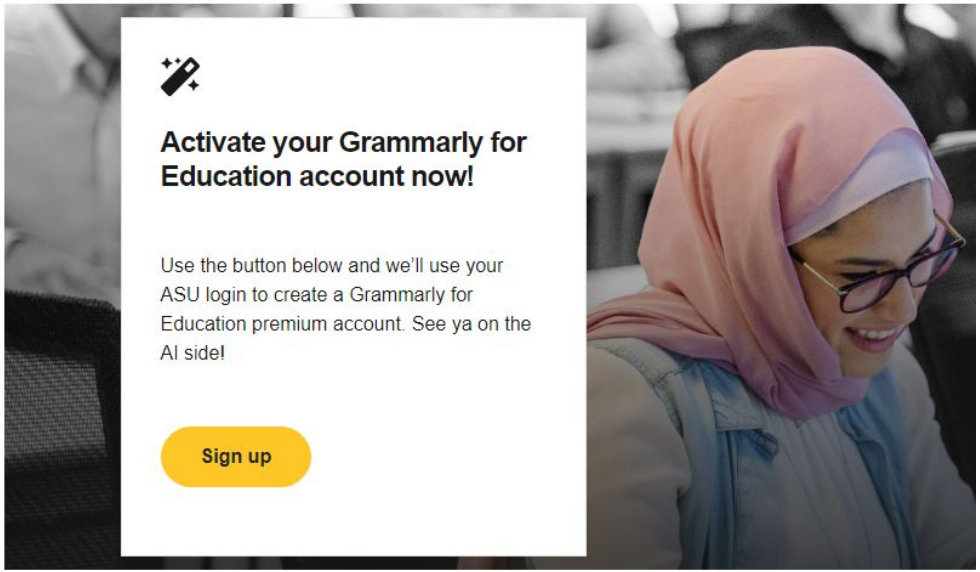




Don't forget to check out the Online Study Hub for additional resources!

Expanded Writing Support Available

Including Grammarly for Education, at no cost!



tutoring.asu.edu/expanded-writing-support

*Available slots for this pilot are limited

Additional Resources

- Course Repo
- Gradle Documentation
- GitHub SSH Help
- Linux Man Pages
- OSI Interactive
- MDN HTTP Docs
  - Requests
  - Responses
- JSON Guide
- org.json Docs
- javax.swing package API
- Swing Tutorials
- Dining Philosophers Interactive
- Austin G Walters Traffic Comparison
- RAFT