

[Print view](#)[Print all](#)[Index of pages](#)

Add Content



Simple Content Items

-
-
-
-
-

Linked or Embedded Items

-

Advanced Content Items

Use this to add a new content item at the end of the page. Use + icons to add content at other points in the page.

Add Content



You may upload new files, select existing files from Resources, or supply the address of a page on the web. Note that you cannot upload more than 20 MB of material at once.

[Frequently Asked Questions about multimedia content](#)

[Frequently Asked Questions about uploading content from ZIP file](#)

Item Name

[Upload new file](#)

Select one or more files to upload.

No file chosen

Upload new version (will replace existing file)

[Add new URL \(web link\)](#)

Or add a URL or "embed code"

Custom name to display for URL [optional]

Select existing file from Resources

Select one or more files already stored in the Resources tool.

Select Resource(s)

Don't Release Item Until All Prerequisites are Completed

Because the value you pasted has a < in it, we are treating it as an "embed code." If you intended to paste a URL, please try again and paste the complete URL.

NOTE: We changed this to

First, we will try this as the URL of a video/audio sharing site. Please see if this shows the contents of the site properly.

test image

Now we are trying to put the contents of the URL in using a different technique (an IFRAME). Please see if this shows the contents of the site properly.



Try other alternative

Save

Start over

Cancel

Please wait while we check with the web server ...

Loading, please wait ...

Edit Item



Display Settings

Path in Resources, or URL/embed code

Item Name

Item Description

[Change Assignment](#)

[Change Forum or Topic](#)

[Change External Tool](#)

[Change Quiz](#)

[Change File or URL](#)

[Change Page](#)

Next page. (I.e. this is assumed to be the next page in a sequence, rather than a subpage.)

Open item in a new window

[**Display Options**](#)

Open in New Window

Open in New Lessons tool Page with 'next' and 'back' buttons

Embed on page

Height:

[**Layout & Style**](#)

Show as button rather than link

Button Color Default

Indent level 0

Custom CSS class

[**Prerequisites & Requirements**](#)

Don't Release Item Until All Prerequisites are Completed

Require This Item

points on the assignment

Visibility & Access

Date release page on the following date (the page will be listed with the release date)

Hide this page from users (page will not appear in left margin)

Edit the groups for which this item should be shown

Group or public access has been set for the folder in which this item is contained. So groups can't be adjusted here.

Select groups for which this item should be shown [if none selected, show to all]

NOTE: You may prefer to set group access in the Resources tool. That will let you set it for a whole folder rather than for each resource separately.

13-Anar, Ariunzaya

12-Avinash, Sadhana, Diptesh, Sanil

17-Belete

4-Berhane, Betelhem, Kalkidan

10-But, Vu, Huan, Van

20-Carey, Lin

5-Elizabeth, Myo, Tin

8-Festus, Kehinde, Suraju

7-Huu, Trung, Thu, Phat

6-Jean, Marat, Adam

22-Kuylim

13-Munkh, Anar, Ariunzaya

2-Musie, Roosvelt, Fortune

18-Omar

1-Osama,Bisrat,Nischal

15-Pawan, Pravash

15-Pawan, Pravash, Omar

14-Ponchanon, Partha, Moynul, Sumayya

19-Seavpheng

16-Somal

3-Taha, Beabkal, Dilshod

9-Ujjwal, Santhosh, Bijay, Karna

21-Yasin

11-Yohannes, Yao, Abel

All students

Update Item

Cancel

Edit Multimedia



Display Settings

Path in Resources, or URL/embed code

Width:

Height:

Use "auto" in height field to use the full height of the content. Only works for URLs within this system.

Alt Text:

Item Description



Change File or URL

Prerequisites & Requirements

Don't Release Item Until All Prerequisites are Completed

Visibility & Access

Edit the groups for which this item should be shown

Edit Item



Width:

Height:

Path in Resources, or URL/embed code

Item Description



Change File or URL

Change File or URL for caption file (must be VTT format)

Edit the groups for which this item should be shown

Don't Release Item Until All Prerequisites are Completed

Show details

This item is displayed with a tag of type "object"

The following should not normally need to be changed:

Mime type

[Update Item](#) [Cancel](#)

Edit Comments Section

Keep Comments Anonymous

Create Gradebook items for these

Maximum points:

Don't Release Item Until All Prerequisites are Completed

Require This Item

Edit the groups for which this item should be shown

[Update Item](#) [Cancel](#)

Edit Student Content Section

Make these student pages anonymous

Create Gradebook items for these

Title in Gradebook:

Maximum points:

Add a comments section to each page

Make these comments anonymous

Grade these comments

Maximum points:

Add a peer review rubric to each page

* Open Date

* Due Date

Allow self-grade

Student pages will be jointly owned by all members of a group rather than an individual.

Select the groups that can own pages. Each student should be part of exactly one group. If you don't select any, all groups will be used.

13-Anar, Ariunzaya

12-Avinash, Sadhana, Diptesh, Sanil

17-Belete

4-Berhane, Betelhem, Kalkidan

10-But, Vu, Huan, Van

20-Carey, Lin

5-Elizabeth, Myo, Tin

8-Festus, Kehinde, Suraju

7-Huu, Trung, Thu, Phat

6-Jean, Marat, Adam

22-Kuylim

13-Munkh, Anar, Ariunzaya

2-Musie, Roosvelt, Fortune

18-Omar

1-Osama,Bisrat,Nischal

15-Pawan, Pravash

15-Pawan, Pravash, Omar

14-Ponchanon, Partha, Moynul, Sumayya

19-Seavpheng

16-Somal

3-Taha, Beabkal, Dilshod

9-Ujjwal, Santhosh, Bijay, Karna

21-Yasin

11-Yohannes, Yao, Abel

All students

Use rubric for students within a group to evaluate each other

Students only see their own page

Don't Release Item Until All Prerequisites are Completed

Require This ItemEdit the groups for which this item should be shown[Update Item](#)[Cancel](#)[Delete](#)**Edit Question Section**[Multiple Choice](#)[Short Answer](#)**Question Text:**

Source



Styles ▾ | Format ▾ | Font ▾ | Size ▾ | ▾ ▾

Words: 0, Characters (with HTML): 0/1000000

Possible Answers:

Possible Answer

Possible Answer**Answer Text****Remove?**

A

[Add New Answer](#)**Possible Answers:****Select Correct Answer(s)****Answer Option****Answer Text****Remove?**

Following answer is correct

A

[Add New Answer](#)

Show students a graph of how others responded after they answer the question

Grade this question.

Title in Gradebook:

Maximum points:

Text shown if answer is correct:



Text shown if answer is incorrect or no answers selected:



Don't Release Item Until All Prerequisites are Completed

Require This Item

[Edit the groups for which this item should be shown](#)[Update Item](#)[Cancel](#)[Delete](#)[Embed Discussions Conversations](#)



Specify number of conversations

Column Settings



Double width

Two columns inside this one, text flows between them

Column & Heading Styling

Column & Heading Color Scheme Default

Force subpage button colors to match heading

Show Borders

Delete this item



Delete ok?

Edit YouTube Link



YouTube URL:

Width:

Height:

Item Description

Edit the groups for which this item should be shown

Don't Release Item Until All Prerequisites are Completed

[Update Item](#) [Cancel](#) [Delete](#)

Embed Announcements



Specify number of announcements

5

[Save](#) [Cancel](#)

Edit Twitter



Twitter Username, e.g. @OxfordWebLearn

Height of display box (in pixels)

Number of Tweets:

5

[Save](#) [Cancel](#)

More Tools



-
-

-
-

Add More Pages



Create more pages in the left margin. To create pages within this one, use "Add Subpage."

* Page Title

Number of pages blank gives one page

Make new pages copies of the current one (except that subpages are omitted)

Save Cancel

You can create a group of pages at once if you put a number in the title.

For example, if you specify "Unit 4" and request 3 pages, you'll get Unit 4, Unit 5 and Unit 6.

Put existing page in the left margin.

Does not create a new copy of the page. You can use this to restore a page that has been deleted to the left margin.

Remove Page



Remove the current page from the left margin. This does not delete the page. To delete it, use the "Index of pages" button.

Remove Cancel

Import IMS Common Cartridge/Package file



IMS Common Cartridge/Package file (ZIP file):

Choose File No file chosen

Import Cancel

Export IMS Common Cartridge file



Export as 1.1, recommended for Moodle and Blackboard. Does not include some course tools like Assignments.

Export as 1.2.

Export as 1.3, recommended for Sakai, Canvas, and Brightspace.

Include all question pools you can access as a single question bank

[Download](#) [Cancel](#)**Add Layout****Add Layout From Template**

- [Section Layouts](#)
- [Page Layouts](#)

Section Title

Section Title

Color Scheme

Default

Additional Options

- [Make Section Collapsible](#)
- [Start Section Collapsed](#)
- [Show Borders](#)
- [Force subpage button colors to match heading](#)

Select Layout

Section Title

Here is some sample text.

 Single column section

Section Title

Here is some sample text.

Here is some sample text.

 Two equal columns

Section Title

Here is some sample text.

Here is some sample text.

 Two columns - double width left

Section Title

Here is some sample text.

Here is some sample text.

 Two columns - double width right

Section Title

Here is some sample text.
Here is some sample text.
Here is some sample text.

Three Equal Columns

Add Layout Cancel

Page layouts allow users to quickly and easily add customizable page templates to their site. This feature will new content to the bottom of the page without deleting anything that already exists.

Choose page layout option:

Add Layout Cancel

Settings



* Page title Course Information

Don't Release Page Until All Prerequisite Pages are Completed

Require This Page

Date release page on the following date (the page will be listed with the release date)

Hide this page from users (page will not appear in left margin)

Create Gradebook item when page is completed. points

Custom CSS File: Use Default

or upload your own: No file chosen

(If this file is named default.css, it will become the site-wide default.)

Save Cancel

Main page content

[Open in new window](#)

CS 523 DE : Big Data Technology

Unfolding Knowledge as Nature Unfolds the Universe

Course Information

"Both understanding and experience are necessary for complete knowledge. Through understanding we enliven the mind and intellect; through experience we enliven the senses, feelings, ego, and organs of action. " --Maharishi

Administrative Contacts

Course Creator and Instructor:

Mrudula Mukadam mmukadam@miu.edu

DE Director: Deribe Tafesse csdedirector@miu.edu

CS Tech Support: cstech@miu.edu

Important Course Dates

First day of term: Monday - Feb 9, 2026

Mandatory student participation deadline: Feb 22, 2026

Midterm exam: Saturday - Apr 4, 2026

Final exam: Saturday - May 23, 2026

Reference Books

- [Hadoop: The Definitive Guide 4th edition by Tom White](#)
- [Hadoop In Practice \(2nd edition\) by Alex Holmes](#)
- [Programming Pig by Alan Gates and Daniel Dai](#)
- [Learning Spark \(Lightning-Fast Data Analysis\) by Holden Karau, Andy Konwinski, Patrick Wendell and Matei Zaharia](#)
- [Spark in Action by Petar Zecevic and Marko Bonaci](#)

Homework (Assignments/Labs/Quizzes)

Assignments, Labs and Quizzes will be posted on Sakai and you are required to check Sakai course page regularly to know about the homework due dates.

- **Mandatory HW** :- You need to upload the solutions for all the mandatory homework on or before the due date. If you are going to be late, you need to take prior approval from the course instructor for late submission of the homework. Your submissions will be graded and feedback will be returned to you within a week's time. Note that, you'll be working in a group of 2-4 students for this mandatory homework

and only one submission is required from a group. The first page of the submission should specify the names and IDs of the students who are part of the group.

- **Optional HW** :- Some of the assignments and labs are *optional*. You can submit these by the recommended due date but they'll not be graded. If you want to get feedback about your optional homework submission, then you need to send an email to the course instructor and request feedback. Note that optional homework will need to be worked on individually and not in a group.
 - **Extra credit Quiz** :- Occasional quizzes will be posted in Sakai Proctortrack which can give you a max of two extra credit points. These quizzes will be announced ahead of time and will be available for a short duration on Sakai Proctortrack over weekends (mostly on a Sunday and available just for one hour).
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Sakai Forum

It is mandatory to use this forum where we'll be discussing course related topics. Students are encouraged to share on the forum what they find useful and informative for the course.

Grading

Course grade is divided as follows:

Midterm Exam - 40%

Final Exam - 40%

Homework - 10%

Final Project - 10%

Extra credit points

for quizzes = Max 2

Meaning of Grades

>=97 A+ Exceptional understanding of the course topics! Great!

>=92 A Excellent proficiency with all the course concepts and topics!

>=88 A- Very good comprehension of course topics

>=84 B+ Good comprehension of course concepts and topics

>=80 B Basic comprehension of course concepts and topics

>=75 B- Satisfactory comprehension of course concepts and topics

>=70 C+ Met minimal expectations for passing the course

>=65 C Performance is not adequate

>=60 C- Performance is below par

Mandatory Student Participation:

Placeholder



Start Time:

End Time:

Event Type:

Description:

Site:

Attachments: