# TCSL-70130 Interdisciplinary Curriculum & Digital Materials Design 跨領域課程與數位教材設計 Shiow-yang Wu 吳秀陽 CSIE 資訊工程學系

NDHU 國立東華大學

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## Course Introduction 課程介紹

- Students need to learn interdisciplinary skills to face the challenges of the fast changing world.
- Learning technologies and digital instructional tools can significantly improve the quality and effectiveness of modern classrooms.
- This course is about interdisciplinary learning & course design with modern learning technologies & digital tools.

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# Main Topics 課程主題

- **►What** is Interdisciplinarity?
- ■Why interdisciplinary learning & education ?
- Core competencies of interdisciplinarity
- Interdisciplinary learning and course design
- Digital technologies for modern instructional design

# Main Topics 課程主題

- ■Al and Machine Learning technologies in interdisciplinary learning
- Multimedia technologies for interdisciplinary course design
- ▶ VR/AR/MR technologies for interdisciplinary course design
- Cloud computing technologies and interdisciplinary learning
- Big data analytics for interdisciplinary learning

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# Main Topics 課程主題

- Modern tools for course development
- Commercial tools
- Open source tools
- LMS(Learning Management Systems)
- ► Moodle I: Introduction
- Moodle II: Course development and learning management
- Term project & presentation

# **Term Project & Presentation**

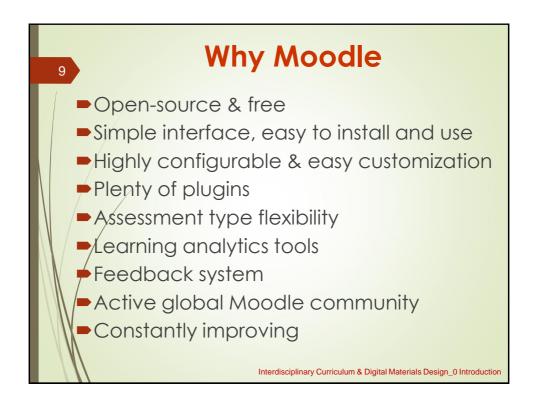
- ■To get hands on experience in using modern LMS for interdisciplinary course design
- Each student is required to select a subject and conduct a term project to design a digital course for the subject
- Project proposal presentation (midterm week)
- Project presentation & demonstration (one week before final)

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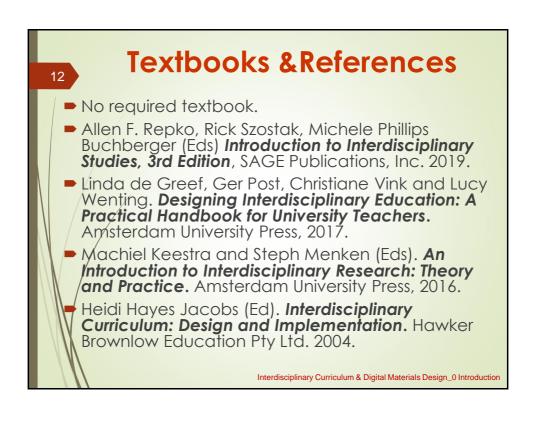
#### **Semester Focus - Moodle**

- For each offering of this class, a modern LMS tool will be selected as the semester focus.
- ■The assignment and term project will be given and conducted based on the focused tool.
- This semester, we will study the popular LMS Moodle.



10		Schedule
	Week	Topics
	1	Introduction, Syllabus, Course information
	2	What is Interdisciplinarity? Why interdisciplinary learning & education?
	3	Core competencies of interdiscipline
	4	Interdisciplinary learning & course design
	5	Digital technologies for modern instructional design
	6	Artificial Intelligence & machine learning technologies in interdisciplinary learning
	7	Multimedia technologies for interdisciplinary course design
	8	Virtual reality/Augmented reality/Mixed reality technologies for interdisciplinary course design
	9	Project proposal presentation (midterm week)
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11		Schedule
	Week	Topics
	10	Cloud computing technologies and interdisciplinary learning
	11	Big data analytics for interdisciplinary learning
	12	Modern tools for course development
	13	Introduction to commercial tools
	14	Introduction to open source tools
	15	LMS (Learning Management Systems)
	16	Moodle
\/\V	17	Term project presentation & demonstration
	18	Final exam
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#### References

- Robert B. Johnson and Larry B. Christensen. Educational Research: Quantitative, Qualitative, and Mixed Approaches, 6th Edition. SAGE Publications, Inc. 2016.
- Scott McLeod and Julie Graber. Harnessing Technology for Deeper Learning. Solution Tree Press, 2018.
- J. Michael Spector. Foundations of Educational Technology: Integrative Approaches and Interdisciplinary Perspectives, 2nd Edition. Routledge, 2015.
- M. D. Roblyer and Joan E. Hughes. Integrating Educational Technology into Teaching, 8th Edition. Pearson, 2018.
- Judith Ann Bazler and Meta Lee Van Sickle. **Cases on Models and Methods for STEAM Education**. IGI Global, 2019.

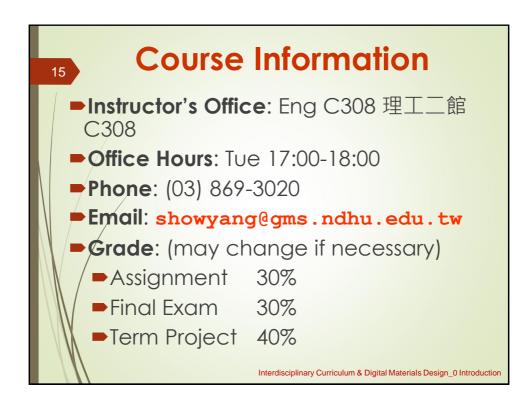
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### **Moodle References**

- Susan Smith Nash and William Rice. Moodle 3 E-Learning Course Development, 4th Edition. Packt Publishing, 2018.
- Susan Smith Nash. Moodle 3.x Teaching Techniques, 3rd Edition. Packt Publishing, 2016.
- Moodle Docs

(<a href="https://docs.moodle.org/38/en/Main\_page">https://docs.moodle.org/38/en/Main\_page</a>)



# Web Pages Class page: http://web.csie.ndhu.edu.tw/show yang/IntDisCurriculum2020s/index .html Not on "東華e學苑"!! Instructor's homepage: http://web.csie.ndhu.edu.tw/sho wyang

# **Assignment 0**

- Download and install Moodle (<u>https://moodle.org/</u>).
- If you are new to Moodle, you may choose the standalone version by following the instruction on "Complete install packages for Windows" (https://docs.moodle.org/38/en/Complete\_install\_packages\_for\_Windows)
- Follow the online tutorial and try it out.
  - Due date: No need to turn in anything.

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# Be Ready!

- This is a very interesting and challenging interdisciplinary course.
- Will learn the theory and practice of interdisciplinary learning.
- Will also get hands on experience on eLearning tools.

Accept the Interdisciplinary Challenge III

