



**NATIONAL
LOUIS
UNIVERSITY**

ACCESS. INNOVATION. EXCELLENCE.

National College of Education (NCE)

Course Number: TIE 585 AW

**Course Name: Maker Movement and STEAM
Education**

CRN:

Start & End Date of Course: 7/31- 8/27/17

**Day(s) & Time: New Content Mondays, Online
Meetings TBD**

Credit Hours: 1 SH

Campus Location: Online

Delivery Method: Online

Instructors: Drs. Angela Elkordy and Ayn Keneman

Email: aelkordy@nl.edu (alternate email is elkorda@gmail.com)

Phone: 224.233.2254 (voice mail is forwarded as an email so please leave a message!)

Office Hours: By request and/or by appointment; optional meetings (online) TBD

Course Description

This course is about learning design for STEAM activities using “Maker” activities, including an introduction to the Maker Movement. The emphasis is on understanding how to scaffold learning in science, technology, engineering and math integrating arts (STEAM) and literature through engaging, hands-on activities and design thinking for elementary and middle school age students. Easily acquired, inexpensive materials will be used for most activities to fit every teacher’s budget.

Prerequisite(s): (Determined by the academic program)

None

Instructional Materials (Required)

Spencer, J., & Juliani, A. J. (2016). LAUNCH: using design thinking to boost creativity and bring out the maker in every student. San Diego, CA: Dave Burgess Consulting, Inc. 0996989544

Recommended Materials: (Include APA Format + ISBN Number as appropriate)

Martinez, S. L., & Stager, G. (2013). Invent to learn: Making, tinkering, and engineering in the classroom. Torrance, CA: Constructing Modern Knowledge Press. 0989151107

Optional Maker materials

Other required materials:

- Please note that additional PDF files and/or links to articles will be indicated within weekly course modules. Please complete these readings during the week they are assigned.

Course Goals and Expected Student Learning Outcomes

1. Articulate the history and socio-cultural context of the Maker Movement and its importance to K-12 education

2. Effectively design “Maker” and/or STEAM learning activities for instruction using the LAUNCH approach
3. Identify science and engineering practices in maker space activities
4. Apply teaching strategies to nurture creativity and design thinking in students through Maker and STEAM activities
5. Create by making and designing objects and processes using a design process

Course Practices

Much of our work together will be collaborative, and shared on the discussion boards. There are several learning routines.

- Readings, watching videos and engaging in online discussions
- Tinkering! Working on “making” things – and sharing your processes
- Creating a reflective journal, documenting your growth as a Maker
- Completion of brief learning surveys (weekly) – for formative assessment
- Attending online meetings (must attend 2 out of 4 possibilities)
- Use of checklists to help you stay on track
- A discussion board for Questions – please post general questions here, personal questions to the instructors (thank you!)

Shared University-Level Outcomes associated with this course (checked below):

- Students acquire content and conceptual knowledge
- Students integrate content and conceptual knowledge into practice
- Students communicate effectively to others
- Students assess logically and critically to construct new knowledge
- Students discern and enact social awareness, self-awareness and respect for human diversity
- Students work collaboratively

Course Schedule and Activities

Module	Major Topics & Subtopics	Instructional Materials	Assignments
1	Introduction to STEAM and the Maker Movement. <ul style="list-style-type: none"> • What is STEAM? • Why “Making”? • What are “Maker Spaces”? • STEAM, “Making” and design 	Robinson, K. (2006, February) Do schools kill creativity? [Video file] Retrieved from: https://www.ted.com/talks/ken_robinson_says_schools_kill_creativity	<ul style="list-style-type: none"> • <i>Initial discussion posts are due Fridays, with responses due Sundays of the same week</i> • <i>Journal entries and Teacher Tinker activities are due Sundays of the week (unless specified otherwise)</i> • Online discussions • Journey to Making: Journal #1 & #2 • Teacher Tinkering activities

	<ul style="list-style-type: none"> • What is design thinking? • LAUNCH cycle steps 1 & 2 	<p>Spencer, J., & Juliani, A. J. (2016). <i>LAUNCH: using design thinking to boost creativity and bring out the maker in every student</i>. San Diego, CA: Dave Burgess Consulting, Inc., pp. 1-66. Chapters 1-3 Web site: https://www.instructables.com/</p>	
2	<p>Learning By “Doing”</p> <ul style="list-style-type: none"> • How do our students learn? • The role of play and creativity in learning • Next Generation Science Standards (NGSS) practices • Engineering in the classroom • LAUNCH cycle steps 3 & 4 	<p>Spencer, J., & Juliani, A. J. (2016). <i>LAUNCH: using design thinking to boost creativity and bring out the maker in every student</i>. San Diego, CA: Dave Burgess Consulting, Inc., pp. 67-128. Chapters 4-6</p>	<ul style="list-style-type: none"> • Online discussions • Journey to Making: Journal #2 • Teacher Tinkering activities
3	<p>Learning By “Doing” (contd)</p> <ul style="list-style-type: none"> • The role of play and creativity in learning • Next Generation Science Standards (NGSS) practices • Engineering in the classroom • Prototyping • LAUNCH cycle steps 5, 6 & 7, cycling back to 1 	<p>Spencer, J., & Juliani, A. J. (2016). <i>LAUNCH: using design thinking to boost creativity and bring out the maker in every student</i>. San Diego, CA: Dave Burgess Consulting, Inc., pp. 129-172. Chapters 7-8</p>	<ul style="list-style-type: none"> • Online discussions • Journey to Making: Journal #3 • Teacher Tinkering activities
4	<p>Designing active learning using STEAM and Maker activities</p> <ul style="list-style-type: none"> • Science and Engineering practices in the NGSS. • Creating and maintaining a class culture of “making” (equity, self-concept, 	<p>Spencer, J., & Juliani, A. J. (2016). <i>LAUNCH: using design thinking to boost creativity and bring out the maker in every student</i>. San Diego, CA: Dave Burgess Consulting, Inc., pp. 173-214. Chapters 9 & 10</p>	<ul style="list-style-type: none"> • Online discussions • Journey to Making: Journal #4 • Teacher Tinkering activities • Maker or STEAM project design plan

	possible barriers to participation). <ul style="list-style-type: none"> Implementing the LAUNCH cycle in the classroom 		
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Grading (Determined by the course instructor within the academic program weighted agreement for signature and core assessments)

Methods of Evaluating Student Progress:

Evaluation	Points
Participation (discussions) 4 x 10 points max per week	40
Journey of a Maker: Journal (minimum 4 required course-related posts x 10) 10 points extra credit for entries beyond the norm, i.e. blogging about visiting makerspaces, organizing a mini-maker night at your house	40
Teacher Tinker activities (minimum 4 required course activities x 10 points each) 10 points extra credit thereafter for Instructable-style investigations and write ups	40
Design project (40 points)	40
Learning Surveys 5 x 4	20
Participation in 2 meetings (required) Extra credit for attending more than 2 meetings (10 points) or for viewing the meeting recording (5 points)	20
Total	200

Course work will be graded on the following scale:

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Final Percentage	Letter Grade
90% and above	A
80-89.5%	B
70-79.5 %	C
60-69.5 %	D
Below 59.5%	F

Delivery Method

University Technology Requirements

At minimum, students are expected access to have the following technology:
D2L compatible hardware

Technology Competencies

At minimum, students are expected to have the following technology competencies:
Capacity to navigate and submit work to D2I
Basic internet research skills

Additional technology requirements for this course include the following:

University Grading Policy

The grading policies can be found in the University Catalog.

Drop-Add Policy

Requests to drop classes are processed through the Academic Advising Center. Students must officially drop in writing. The university policy regarding dropping or adding a course can be found at <http://www.nl.edu/advising/registration/regulations.cfm> under the "Regulations" heading. Questions about dropping courses can be directed to 888.658.8632, option 2.

Academic Learning Support

Tutoring and Learning Support

Comprehensive online and in-person tutoring and learning support are available to all students. Students may access this resource at www.nl.edu/lis.

Online Tutoring Service (Smarthinking) - <http://libguides.nl.edu/smarthinking>

Face to Face Tutoring Information -

<http://www.nl.edu/t4/student-services/learningsupport/tutoringandlearningsupport/>

For additional questions, contact Learning Support at 312.261.3374 or Learn@nl.edu.

College/Department Learning Assistance

The National College of Education

National College of Education Conceptual Framework

NCE Faculty and candidates use scholarly habits of mind and methods of inquiry in order to affect P-12 student learning by:

- Envisioning, articulating, and modeling democratic and progressive education
- Designing powerful learning environments that:
 - integrate appropriate technologies
 - utilize multiple meaningful assessments
 - enable self-directed learning
- Working collaboratively in diverse communities and with diverse learners to achieve learning goals
- Advocating for democratic values, equity, access and resources to assure educational success for all

NCE Faculty and candidates continuously demonstrate a high standard of professional ethics by:

- Cultivating curiosity and excitement for learning in themselves and others
- Respecting and learning from other peoples, cultures, and points of view
- Demonstrating a caring attitude in recognizing the needs of others and acting to promote their growth
- Acting with confidence and self-knowledge to assume professional leadership roles and responsibilities
- Using information from self and others to continuously improve

Diversity, Access and Equity

In accordance with the Americans with Disabilities Act, Section 504 and University policy, we work hard to ensure that all facilities and programs are accessible to students with special needs. All accommodations provided are based on individual need substantiated by medical documentation.

For information or questions about accessibility or special accommodations, please contact Student Accommodations Coordinator at 888.658.8632 x3188 or DAE@nl.edu.

Equal Opportunity

National Louis University affords equal opportunity to all qualified persons regardless of race, color, age, creed, religion, gender, sexual orientation, ancestry, national origin, disability, political beliefs, marital status, military status, and unfavorable military discharge other than dishonorable. Any student with questions or concerns about any type of discrimination is encouraged to contact the Department of Diversity, Access and Equity at 847.947.5275 or DAE@nl.edu.

Religious Observance

If religious observance will cause a student to be absent from class or otherwise affect his or her ability to complete academic assignments, he or she must notify the instructor in advance and make necessary arrangements to complete the entire course.

National Louis University Policies and Statements

Students can find a full description of student policies and procedures in the [National Louis University Student Guidebook](#). Please be particularly aware of the following policies as they apply to your coursework.

Academic Honesty and Plagiarism

With respect to the academic honesty of students, it is expected that all material submitted as part of any class exercise, in or out of class, is the actual work of the student whose name appears on the material or is properly documented otherwise. Academic honesty includes plagiarism as well as receiving and/or giving improper assistance and other forms of cheating on coursework. Students found to have engaged in academic dishonesty are subject to disciplinary action and may be dismissed from the University. Faculty has the right to analyze and evaluate students' course work. When evidence of academic dishonesty is discovered, an established procedure of resolution will be activated to bring the matter to closure.

The Policy on Academic Honesty is in the online [University Catalog](#) and in the Student Guidebook as a hard copy. The online Student Handbook can be found at www.nl.edu/StudentServices/studentaffairs/StudentHandbook/.

For resources on how to cite properly and avoid plagiarism, please visit NLU Learning Support's guide at <http://libguides.nl.edu/plagiarism>. For an interactive tutorial on how to avoid plagiarism, go to <http://www-apps.umuc.edu/vailtutor/index.html>.

Policy on Student Disciplinary Hearings & Appeals Systems

National Louis University focuses attention on the development of a student's potential by encouraging self-discipline, fostering a respect for the rights of others, and encouraging cooperation with the regulations of the University. The Policy on Student Disciplinary Hearings & Appeals Systems can be found in the [University Catalog](#).

Policy on Sexual Harassment

National Louis University seeks to provide for its students, faculty, administration, and staff an environment that is free from sexual harassment. The Policy on Sexual Harassment can be found in the [University Catalog](#).

Grievance Procedures

Non-Academic Grievances

The University Student Ombudsman (USO) is the primary contact for students seeking resolution to their non-academic problems. The NLU Ombudsman can be reached at 888.658.8632 x3461 or Comments@nl.edu.

Academic Decision Appeals

Students may only appeal academic decisions under a policy or procedure. All academic policies and procedures can be found in the University Catalog. Students must initiate the appeal process within 30 business days following formal (documented) notification of the decision by contacting the individual responsible for the decision (e.g., the instructor who assigned a grade or the administrator who informed the person of the decision) to attempt informal resolution of the disagreement. The student may also consult with an academic advisor, program director, department chair, or student services professional to obtain informal assistance. (Such consultation does not initiate the appeal process.)

For Academic Decision Appeals, please contact the Dean's Office at the specific college related to the course:

College of Arts and Sciences: 888.658.8632 x3378

College of Management and Business: 888.658.8632 x3609

National College of Education: 888.658.8632 x5065

Student Privacy

In compliance with the Family Educational Rights and Privacy Act (FERPA) of 1974, National Louis University protects the rights of students and their parents with relation to the accuracy and privacy of their educational records. In accordance with the provisions of this act, National Louis University has established basic policies to prevent the release of any personally identifiable information regarding any of its students, without first having received the consent of the student (or, in some instances, the parent).

Student Resources

Help Desk & Technical User Support

Help Desk staff are available 24 hours a day, 7 days a week through a toll-free number. To reach the Help Desk, call 866.813.1177, dial x4357 on campus or e-mail at helpdesk@nl.edu.

Textbooks

The NLU Virtual Bookstore offers textbook rentals, new and used textbooks, eTextbooks and textbook buybacks. For more information, contact Customer Service at 877.284.6744 or bookstore@ecampus.com.

Important University Dates

See National Louis University's Academic Calendar.

University Catalog

The University Catalog contains official statements on University programs and academic policies and should be carefully consulted for any details. Program-specific information is also described in the handbooks of University programs.

Student Services

See this list of National Louis University's wide array of services for students.

NLU Student Wellness

Counseling Services

Students seeking counseling referrals should contact the Office of Student Life at 888.658.8632 x3568. Students may obtain the names of licensed therapists in their community from the Office of Student affairs. The cost of counseling outside the university is incurred by the student; not by National Louis University.

Health Services

National Louis University does not have a health professional on campus available to students. If a medical emergency occurs on campus, students should call 911. For more information, contact the Office of Student Affairs at 888.658.8632 x3568.

Quick Links

Academic Advising: 888.658.8632 x5900 • Advising@nl.edu • www.nl.edu/advising

Accessibility/Special Accommodations: 888.658.8632 x3188 • DAE@nl.edu.

Accreditation: <http://www.nl.edu/t4/about/accreditation/>

Admissions: 888.658.8632 x5151 • Admissions@nl.edu • www.nl.edu/oar

Alumni: 312.261.3159 • alumni@nl.edu

Campus Locations (Illinois): 888.658.8632 • <http://www.nl.edu/t4/about/campuslocations/illinois/>

Campus Locations (Florida): 800.366.6581 • www.nl.edu/florida

Campus Locations (Wisconsin): 800.443.5522 x6842 • www.nl.edu/wisconsin

Career Development: 888.658.8632 x3270 • careerdevelopment@nl.edu •

www.nl.edu/careerdevelopment

NLU Course Schedule

Enrollment: 888.658.8632 • www.nl.edu/admissions

Facilities: 888.658.8632 • Chicago x3333 • Elgin x8800 • Lisle x4444 • Skokie x2222 • Wheeling x5555

Student Finance/Financial Aid: 888.658.8632 x5350 • StudentFinance@nl.edu • www.nl.edu/financialaid

Harrison Fellows Scholarship: 888.327.4182 • HarrisonFellows@nl.edu • www.nl.edu/harrisonfellows

Help Desk/Technical Student Support: 866.813.1177 • On campus: x4357 •

Learning Support: 888.658.8632 x3374 • Learn@nl.edu • www.nl.edu/lfs

Library: 888.658.8632 x3376 • Library@nl.edu • www.nl.edu/library

NLU Virtual Bookstore: 877.284.6744 • BookStore@ecampus.com • www.nl.edu/bookstore

NLU Catalog and Course Information

Ombudsman: 888.658.8632 x3461 • Comments@nl.edu • www.nl.edu/ombudsman

Prior Learning Assessment: 888.658.8632 x4319 • www.nl.edu/pla

Registrar: 888.658.8632 x5718 • Registrar@nl.edu • www.nl.edu/oar

Smartthinking: 888.658.8632 x3374 • Learn@nl.edu

Student Experience and Student Life: 888.658.8632 x3568 • StudentAffairs@nl.edu

• www.nl.edu/studentexperience

Student Guidebook

Veterans Program: 888.658.8632 x3262 • www.nl.edu/veterans