

DES 1111 Creative Problem Solving (3cr) Spring 2017
Moodle Site: <http://z.umn.edu/Spring2017CPS>
January 16, 2016.

Creative Problem Solving

Required Start-up in-person meetings:

Wednesday, January 18, 5:00-6:50pm, Rapson 31 [East Bank]
Thursday, January 19, 1145-1pm, McNeal 274 [St. Paul] or
Saturday, January 21, 10:00am-12:00pm, Rapson 31 [East Bank]
[you only need attend one of these sessions]

Instructor: Brad Hokanson
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Teaching assistants:
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Phone: 612.624.4918

Web page: <http://hokanson.design.umn.edu>

St. Paul Office & Hours:
900am-1130am, Wednesdays and
Thursdays, McNeal 266A.

And by appointment.
Near the 262 color studio, behind the elevator

East Bank Office & Hours:
Rapson 69, by appointment only
Basement level, behind the vending machines

This course will be an active learning environment for all students, both in small groups and in discussions. The course will also examine how the ideas presented here fit within an integrated education: the very basis of an educated person is involved with the development of new ideas, and this is the goal for all scholarship, i.e. the creation of new knowledge. The center of the course is your own creative work, accomplished alone and with others. Your work will be critiqued by faculty and other students, in discussion, and in the larger lecture format. This will help you develop your understanding of how you can be creative.

Within the scope of a liberal education, it is important to broaden our understanding of how we think. This course provides the chance to explore and engage with contemporary and historic practice in the creative fields, principally in art and design through a series of personal and creative activities. This course promotes the exploration of new media as well as traditional practice through personal involvement in creativity and creative practice. Central to the mission of the course is the development of your personal traits of: creativity, thoughtful analysis, ingenuity, experimentation and the ability to solve problems. The goal of this course is to create a lasting, permanent, and integrated connection between the student, their own creativity, and the creative fields.

All students in the course are responsible for their own efforts in terms of creativity, and in the written portion of the course, to report on and reflect on their creative efforts. In addition, all students participate in discussion in small groups regarding common and shared creative efforts, and common and shared problem solving. Students will be introduced to examples in the creative fields [such as art, music, design]. An understanding will be developed as to how their creative efforts fit within their culture and within their society, and within the historical dimensions of each.

Assessment of the work of the course occurs through a variety of means. Each project is critiqued within discussion sections and evaluated against a set of heuristics listed below. Creativity is also measured through rigorous standardized testing and compared to an extensive data base; results are discussed with the entire class and explained to develop their understanding of the skill of creativity. Students will also complete a written test on the information and processes presented in the course.

Student Learning Outcomes met through this course:

- Can identify, define, and solve problems.
- Understand the role of creativity, innovation, discovery, and expression across disciplines.
- Understand diverse philosophies and ideas within and across societies.

This course will help you understand the role of creativity and innovation in your own work and in other disciplines. It will challenge you to move outside of your existing comfort zone and to recognize the value of that exploration. This course will help you understand the importance of diverse ideas, and to convey that understanding to others.

The principal learning activity in the course is a series of "differents" where students are challenged to identify and change their own cultural, habitual, and normal patterns of behavior. Beginning with a prompt, e.g. "eat something different", learners recognize their limits and overcome them. In addition, they are encouraged to understand that creativity is based on societal norms, and that by its nature, it will differ from and be discouraged by society; in this course, the persistence of the creative person is developed through practice. At the same time, these exercises are constrained by concerns of safety, legality, and economics, which are addressed in their creative process.

The role of creativity through various disciplines is discussed and examined as well. One ongoing effort within the class is to discuss the role of creativity and the importance of creativity in the university. Each student is required to meet with their other instructors and discuss their creative efforts...i.e. their creative research...to understand innovation in various domains. Discussion of their findings with students helps all to understand the broad scope of the development of new knowledge.

Students are encouraged to better understand how others [both people and cultures] view creativity through lecture presentations and through exercises that engage others; while the individual learner may be very creative, they may live in a society or family that has stricter limits. For example, one assignment is to evaluate the habits of their significant other [friend, roommate, spouse, parent] and adopt one of those habits for a day. In this way the learner begins to understand the relationship between individual creativity and society in general.

Course Introduction

How we generate new ideas is a critical skill in any field. It is a skill that can be employed on a small project or on a large project, but it must be developed and practiced. This course presents classic and new techniques known in the design fields through student activities, research, papers, projects, and exams.

The use and mastery of creativity is the goal for this class and this semester. Assignments, lectures, discussions, and projects all will focus on this development of creative skills. This is the course that is the center of student activities at the University; it is the one course that deals most directly with creativity and creation.

The nature of a student's university experience, particularly as a first year student, is a unique and different cognitive experience. We ask them to think logically, to have critical thinking skills, to explore ideas and to combine, integrate, and re-invent the way they think. No longer is a paper a reiteration of the same materials. Independent thought is acceptable, often required, and new ideas must be developed.

How students (and others) are creative is tied to their educational and social background. Too often the development of just one answer is the result of our educational system: believing here is only one right answer. We select our students on the basis of their ability to play by the rules of high school and standardized tests. They (and we) need the ability to think beyond linear, expected thinking and to be creative.

Creative problem solving is a skill that can be taught. It requires extensive work by the learners, but the lessons, while not conveying traditional content, will change the learner in ways they do not foresee. And in

ways not generally found at the University, but ways which are cherished. While we look for our students to be creative, we don't work at developing those same skills.

The course is a hybrid; it will involve reading, writing, discussions, as well as specific exercises designed to increase and improve your creative skills. Course requirements will include: reading, writings, creative projects and a summarizing exam.

The "differents" will be graded on a ten point scale; creativity, writing, completion, being planned and executed. The best of the section will be awarded an extra point, and the best in class gets another. You will need to write up an description of your 'different' each time and post it to Moodle, a course management system for the University. You can reach your section through the myU portal or through <http://ay16.moodle.umn.edu>. You will also need to post at least three digital pictures of your self engaged in each DSD; you will attach these to your web posting.

Objectives

In this course, students will develop an understanding of creativity and innovation, improve their own creativity and problem solving skills, develop cognitive strategies to implement and address other courses, and begin to understand some historical examples of creative development.

Class format:

This course will be primarily lecture and discussion format, with cooperative group projects, computer lab time, field trips and visiting lecturers. In general there will be reading required for each class session with written summaries of the material. Every class will also have a required creative exercise that you must develop and present to the remainder of the class. There will be a midterm, a written final, and a final project. The project will also be presented to the class.

Required Text: Johnson, S. 2009. Where good ideas come from, Riverhead Trade, NY. Available as an eBook, hardback, or paperback. You will need this by the third week. Available online from Amazon.com.

Required equipment: You are required to have a digital camera capable of still images of reasonable [>2meg] quality. You will use this throughout the term, and usable cameras are available from Target and other sources for under \$100. Your phone will probably work well, but you will need to transfer and post images through your computer.

Release of Work Statement:

Students understand that enrollment in this course grants consent for their work to be selected for inclusion in college or departmental publications (online or in print). Your instructor may select to use your work to represent her/his skills as an instructor in a teaching portfolio (online or in print) or in subsequent classes.

Faculty visit [3]: Select one of your classes and go meet with the course instructor and engage that person in conversation. Document your meeting on Moodle in about 200 words and *three* images. This is due by the October 5 session. Rinse and repeat. This will be repeated two additional times, with due dates of November 2 and November 30. Note that the first two visits are early in the term, faculty have the habit of being away at the wrong times, and so begin this early.

The Ribbon Project: Every student that attends first session for the course will receive a piece of ribbon. It should be displayed somewhere on your regular apparel, either on your jacket or tied to your knapsack; it will identify you as being in the Creativity Problem Solving class. This way you'll be able to meet other people in the class, in person, and all across campus. Replacement ribbons are available from me in my office, 266A McNeal and at the deans office in 101 Rapson.

This assignment is being done to enable you, the members of the class, to connect with each other outside of class and in different locales. So if you're riding on the bus and someone else is displaying a

ribbon, say hello and maybe something like "What did you do for that last assignment in class?" You'll both be getting points for meeting and having a little fun outside class. And by the way, I've got a ribbon on my briefcase as well.

As an assignment three selfies are required of you and your new "ribbon" acquaintances. These photos should be taken on different days and can be done anywhere on campus or off *except* for the St. Paul Campus [which means you can't do them in class or McNeal]. While three are required for six points, if you take four more different selfies, it will be worth ten points.

And I've enlisted a group of "spies" on campus who have been asked to find people wearing the ribbon; they'll ask for your email address, and that will give you an extra credit point as well. AND you might find someone from last fall, and if you take the selfie, it still counts. Same color ribbon.

Meet-Ups: A series of "meet-ups" will be scheduled by students in the class to allow you to have a better chance to take the purple ribbon selfies. Please contact me if you're interested in setting one up. This could lead to pizza. This is required of Honors students.

UROP proposal: Honor students will develop a complete UROP proposal ready for submittal. Students who are not in Honors may complete a proposal as well in the class for extra credit. See University UROP standards at <http://www.urop.umn.edu/> UROP proposals are due February 27 and in order to earn credit, your proposal must be turned in to the instructor by that date. Completion of a proposal does not obligate you to actually submit the proposal this term to the University UROP office. See: <https://ugresearch-stg.umn.edu/students/urop> for further information.

Rube Goldberg machine: A significant project of the semester will be the creation of a Rube Goldberg machine by a three person team. Teams will be formed later in the semester. The machine will employ everyday objects to perform a simple task. More details will be provided later in the semester.

Assignment DSD1: Conceptualize, plan in advance and *eat* something different. Eat something different; that is, eat something completely different, not something that has been just left out of your diet; suggestions: a different culture, an entirely new creation, or a different manner or definition of eating. You should understand that this is not an assignment solely about food, but about the process of eating, literally and figuratively. Again, plan and implement your plan; report on the results. A reminder, it's not just something you happen to eat that is different, but a specific activity for this class. Again, note that there are limits on the exercise which include things that are dangerous or illegal; if in doubt check the safety of eating before your exercise. This is due before midnight, 1155pm Tuesday, January 24. You can reach Moodle through the myU portal or through <http://ay16.moodle.umn.edu>. Your writing should be the equivalent of typed one page at a minimum; to be turned in the next class session, about 200 words. I'd suggest writing it as a word processing document, and then you would *copy* it into Moodle. Do NOT attach the file. Do NOT attach word processing files.

Do NOT attach word processing files. You will be penalized if you do.

Do not post your writing as an attachment and do not send it to anyone, including the instructors, in an email. Post your answer through Moodle by clicking on "Add Submission". In addition, "attach" *at least three different* photographs recording your activity to your posting. The photos can be taken by digital camera, cell phone, or film camera and scanned. Please do not turn in more than ten images or video files larger than 100M. Grading is by the following rubric:

Do Something Different Rubric

	0	1	2
Planning and initiation 2pts.	Let events determine the DSD; Did not initiate the event; did not plan the activity, and/or did the activity via some medium.	Soft planning of event; lack of initiative.	Developed the idea ahead of time. Made the event happen, in person. Resolved issues, solved problems.
Written Documentation 2pts	No written documentation by grade date. High number of grammatical/spelling errors.	Poorly written with multiple spelling or grammatical errors, too short, or slightly late. Not electronic.	About 200 words describing the idea, preparation, event, and conclusion. Few grammatical errors. On time.
Executed 2pts	DSD is not complete and/or doubt in completion	DSD done in private or with limited challenge or uniqueness.	DSD completed; challenging task, not expected behavior and in public.
Photo/video record 2pts	No photographic documentation	Limited number or poor quality photos of activity; files not properly named.	Multiple images or video uploaded to Moodle that well describe the activity.
Timeliness 2pts	Submitted within 2 weeks of due date.	Submitted within 1 week of due date.	Submitted on time.
Originality [not scored, but this will be scored after 3rd week.]	Different but not that unusual or surprising.	Different and moderately creative; not surprising or challenging.	DSD is creative, inventive, surprising, and specifically challenging for the learner.

All assignments must be turned in online and within two weeks of due date for credit to be awarded.

General course grading breakdown:

Element	Number	Points	Total points available
Differents	13	10*	130
Reading quizzes	5	10	50
Written exam	1	30	30
Participation	2	10	20
Rube Goldberg machine(s)	1	32*	32
Faculty visits	3	10	30

*Additional points available for best in section, best in class.

292 total – 70% req'd to pass.

Class Schedule:

This schedule **will change** and is subject to the vagaries of weather, discussion, and course development. Additional sessions may be scheduled outside of the normal class times.

Week Section: Session date [Wednesdays]	General Topic/ Presentation	Reading assignment
1 • January 18 J16-24 In person January 18, 19, 21	Course Introduction and Methods TTCT testing Newsweek article	Read Newsweek article on creativity
2 • January 25 J25-31	Brain writing, photo workshop, Epstein/journaling Newsweek Quiz	Read Johnson p1-22: Reef, City, Web
3 • February 1 F1-7	The CPS process Cognitive web Improv	Read Johnson p23-42: The Adjacent Possible
4 • February 8 F8-15	Attribute listing Quiz	Read Johnson p43-66: Liquid Networks
5 • February 15 F15-22	Faculty visit due Torrance test review. Intro The Smooch Project	Read Johnson p67-96: The Slow Hunch
6 • February 22 F22-M1	Visual thinking strategies Random words & images Quiz	Read Johnson p97-128: Serendipity
7 • March 1 M1-7	Guest: Career Services	
8 • March 8 M8-21	Close reading of Johnson. Gifting Design exercise Formal brainstorming	Read Johnson p129-148: Error
V • March 15	Spring Break	
9 • March 22 M22-28	Faculty visit due Quiz	
10 • March 29 M29-A4	TTCT testing Cognitive Science	
11 • April 5 A5-12	CPS Orchestra	Read Johnson p149-174: Exaptation
12 • April 12 A12-18	Secrets of... Epstein tests	
13 • April 19 A19-25	Draft Goldberg Video due Review DSD's;	Read Johnson p175-210 Platforms
14 • April 26 A26-M2	Faculty visit due TTCT results	
15 • May 3 M3-M10	Written Exam Present Rube Goldberg Device	
Finals • May 10	Online final exam All work due May 10	

General Course Requirements

All students at the University have the right to a civil, productive, and stimulating learning environment. In turn, instructors have a responsibility to nurture and maintain such an environment. Lively, even heated, discussion is not disruptive behavior. Both instructors and students have a fundamental obligation to respect the rights of each other and an equally fundamental obligation to respect the instructional setting as a place for civil, courteous behavior.

(or refer to http://www1.umn.edu/regents/policies/administrative/Equity_Diversity_EO_AA.pdf)

Students understand that enrollment in this course grants consent for their work to be selected for inclusion in college or departmental publications (online or in print.)

Grading Policy:

The course will be graded relative to an overall evaluation of work during the term, unless other arrangements have been made. About 25% of your course grade will be based on your class participation. Additional credit will be given for hard work, progress, class participation, creativity and ingenuity. About 25% of the grade for the course will be based on these qualities, with the remainder of the grade weighted on weeks spend on given projects. Evaluation and scoring of assignments is included with syllabus or with the project brief.

Grades in general:

B: [Represents achievement that is significantly above the level necessary to meet course requirements.] The design quality of the work is subjectively good. All work is complete, on time and at least well done.

Attendance has been good; only one, if any classes were missed, and the student is actively engaged in the class for the entire session. A level of skill in was demonstrated consistent with this course.

A: [Represents achievement that is outstanding relative to the level necessary to meet course requirements.]

Beyond that previous level, the student has exhibited characteristics that are (subjectively) better or beyond competence or completion. Excitement and great involvement in the medium is demonstrated; high design skill and exploration is shown through the work. The descriptive words are more and better. **Generally, no more than one quarter to one third of the class will receive an A grade. Creativity is a socially and culturally based subjective property and this is specifically reflected in the grading of this course.** In short, the course is graded on a curve.

C: [Represents achievement that meets course requirements in every respect.] All work has been completed. Attendance has been acceptable.

Grades lower than this involve attendance or assignments missing, work lacking design skill. Variations on the above grades will be given for subjective reasons only; progress, effort, creativity or lack thereof will affect grades that have been earned at a letter grade level.

Attendance Policy:

Being in class and participating is an important component of the learning process of this class. Attendance, including working in class, is required. Three or more absences (for any reason) may result in a lowering of student grade by two grade levels. (e.g. A to C). More than four absences can result in failure. Excessive lateness will also result in lowering of grade, lateness as defined as being more than 15 minutes late, will count as one half absence. Attendance will be taken in various forms at varied times during class. **There are no "excused" absences.** In general, there will be no incompletes.

Workload Expectation

For undergraduate courses, one credit is defined as equivalent to three hours of learning effort per week over a full semester necessary for an average student to achieve an average grade in the course. For example, a student taking a two credit course that meets for two hours a week should expect to spend an additional four hours a week on coursework outside the classroom.

Academic Misconduct:

Academic misconduct is defined as any act that violates the rights of another student with respect to academic work or involves misrepresentation of a student's own work. Academic misconduct includes but is not limited to cheating on assignments or examinations, plagiarizing pieces of work, depriving others of necessary coursework, and sabotaging another's work. Academic misconduct in any portion of the academic work of a course shall be grounds for awarding a grade of F or N for the entire course. Instructors are obligated to report suspected academic misconduct to their department.

Scholastic Dishonesty and Student Conduct Code:

http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.pdf

Academic Freedom and Responsibility:

http://www1.umn.edu/regents/policies/academic/Academic_Freedom.pdf

Sexual Harassment:

<http://www1.umn.edu/regents/policies/humanresources/SexHarassment.pdf>

Availability of Disability and Mental Health Services:

If you have any special classroom requirements please contact one of the offices listed below. They will work with you and, if necessary, they will contact the instructor to work out the details for any necessary accommodations.

Student Academic Success Service	340 Appleby Hall, Mpls	612-624-3323
Counseling/Consulting Services	199 Coffey Hall, St. Paul	612-624-3323
Disability Services	180 McNamara, Mpls	612-626-1333
Center for Writing	10 Nicholson Hall, Mpls	612-626-7579

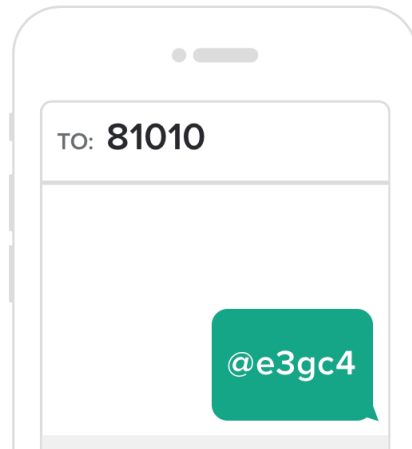
Or refer to <http://ds.umn.edu/student-services.html> and <http://www.mentalhealth.umn.edu>

Cell Phones and in class computers:

Please turn off your cell phone in this and every other class. If your phone rings in class, I reserve the right to answer it and say what ever comes in my mind. Laptop computers may not be used in class; you may take notes by other means, but laptops should be closed and/or shut down.

Web link for signing up for text messages: <https://www.remind.com/join/akbkg>

Or, text the message "@e3gc4" to 81010



This may be used in class for last minute changes or cancellations. The list will be deleted at end of term.

Creative Problem Solving

September 7, 2016

"The best way to have a good idea is to have a lot of ideas."

— Dr. Linus Pauling

Session One

Moodle site: <http://z.umn.edu/spring2017cps>

Read the Newsweek article about the state of creativity in the United States; there will be a quiz on this material next week.

Assignment DSD1: Conceptualize, plan in advance and *eat* something different. Eat something different; that is, eat something completely different, not something that has been just left out of your diet; suggestions: a different culture, an entirely new creation, or a different manner or definition of eating. You should understand that this is not an assignment solely about food, but about the process of eating, literally and figuratively. Again, plan and implement your plan; report on the results. A reminder, it's not just something you happen to eat that is different, but a specific activity for this class. Again, note that there are limits on the exercise which include things that are dangerous or illegal; if in doubt check the safety of eating before your exercise. **This is due before midnight, 11:55pm Tuesday, January 24**, i.e. if you wait until midnight to post, it will be late. Document this activity in a posting to our area on Moodle. You can reach your section through the myU portal or through <http://AY16.moodle.umn.edu> or <http://z.umn.edu/Spring2017CPS>. It should be the equivalent of typed one page at a minimum; to be turned in the next class session. This is about 200 words. I'd suggest writing it as a word processing document, but you can write directly into Moodle.

Do not attach the word processing file; copy and paste the text directly into Moodle. Do not send this to anyone, including the instructors, in an email. Post your answer by clicking on "Add Submission". In addition, "attach" at least three and no more than ten photographs recording your activity to your posting. The photo can be taken by digital camera, cell phone, or film camera and scanned. Name your photograph "*lastname1.jpg*" If you take more than one, use a series of *lastname1a.jpg*, *lastname1b.jpg*, etc. Please do not turn in more than ten images or video files larger than 100M. Grading is by the rubric shown in the syllabus.

Instructor meeting: Go talk to one of your other professors during their office hours. While you could use this to address your least favorite class or one with which you are having trouble, you could also use this in any of your other classes [including this one]. Your write up should include your planning for the event, questions used, and if possible a photo of your instructor. Other photographs documenting the experience in some other way that do not include the instructor's face are acceptable such as photographs of the hands or feet. In general, photographs should be, at the least, inside the instructors office; door signs are not acceptable proof nor is a photograph of the instructor at the far front of a lecture hall. **This is due October 5.**

Sign up for reminders and other contacts from Remind101.com;

<https://www.remind.com/join/e3gc4>