

Advancing Underserved Student Success Through Faculty Intentionality in Problem-Centered Learning

A collection of UHD implementation of an AAC&U LEAP project
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Table of Content

Implementation design and select assignment instructions	Authors and contacts ‡	Pages
Biol 1301 implementation overview	Dr. Adriana Visbal and	2-3
Biol 1301 sample assignment instruction	Dr. Rachana Sadana	
Less transparency		4-7
More transparency with annotation		8
Biol 3303 implementation overview	Dr. Yuanyuan (Connie) Kang	9
Biol 3303 sample assignment		
Less transparency		10-11
More transparency with annotation		12-15
PED 3301 implementation overview	Dr. John Kelly	16
PED 3301 sample assignment instruction		
Less transparency		17
More transparency with annotation		18
COMM 3315 implementation overview	Dr. Creshema Murray	19
COMM 3315 sample assignment instruction		
Less transparency		20
More transparency with annotation		21-22
Acknowledgement and resources		23

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‡ You should contact each author individually regarding the design of their assignment and any transparency techniques used in the design.

Biol1301 Implementation

Title of Project:

Making Connections Across Biology: A problem-based homework assignment set aimed to connect the major themes of biology and develop critical thinking skills.

Problem/Scope of Project:

The goal of the project is for students to connect and apply the concepts from all 6 Modules of the General Biology I course by answering problem sets (HW assignments) related to one topic: Diabetes and insulin. This project should allow students to make conceptual connections across all 4 Big Ideas of biology as delineated in the syllabus:

- **Big Idea 1:** Adaptive processes such as mutations, genetic drift, and natural selection drive the evolution of life's diversity (Refer to learning outcomes for the Introduction).
- **Big Idea 2:** Basic units of structure define the function of all living things. (Refer to learning outcomes for Modules 1 & 2)
- **Big Idea 3:** Energy is stored, used, and transformed in living systems. (Refer to learning outcomes for Module 3)
- **Big Idea 4:** Genetic information is transmitted through generations and expressed in a regulated manner. (Refer to learning outcomes for Modules 4-6).

Students will have a total of 5 assignments to complete. The idea is that the 1st HW assignment will start off slowly with guided questions and only 1-2 thought or problem based questions. The HW sets will get progressively harder and have more decision-making and problem-solving qualities to them. Below is a brief overview of each homework topic.

HW1: Focus on insulin as a peptide and the chemistry behind its secondary and tertiary protein structure. How is this structure maintained and what happens if it is disrupted?

HW2: Synthesis, transport and secretion of insulin. Emphasis will be placed on endomembrane system components. Students will interpret pulse-chase data to identify problems and make decisions about theoretical patients.

HW3: Metabolism and how glucose and fructose are metabolized differently. Focus on link between high fructose corn-syrup and obesity and diabetes.

HW4: How is genetic information transmitted and copied?

HW 5 and 6 will deal with how genetic information is transmitted through generations and expressed in a regular manner. It will use specific human genetic mutations that give rise to permanent neonatal diabetes (PNDM) to illustrate these concepts and ask students to make decisions and apply concepts learned in class to this topic.

High-Impact Practice(s) in place for course and for project:

Team-Based Learning

Description of initial sample and when will it be collected:

Module 2 HW will be the first sample collected. This assignment consists of 2 parts. Part I is a series of guided questions to help students master course concepts including the endomembrane system and protein synthesis and trafficking. Part II asks students to interpret data, recognize a problem, propose solutions and evaluate solutions using a hypothetical patient scenario. It was due Feb. 24th.

Description of final sample and when will it be collected:

Module 5 and 6 HW will constitute the final sample. This final assignment will deal with how genetic information is transmitted through generations and expressed in a regular manner. It will use specific human genetic mutations that give rise to permanent neonatal diabetes (PNDM) to illustrate these concepts and ask students to use their knowledge to identify a problem, make decisions, propose solutions and evaluate solutions using a hypothetical medical scenario. This assignment will require the integration of all major biological concepts. It will be due the day of the final exam.

Transparency Techniques:

Assignment Design Techniques:

From the following 6 techniques, I am implementing the ones in bold.

1. Flexible formats appeal equitably to various learners' strengths
2. **Build students' critical thinking skills in a logical sequence**
3. **Criteria for success (provide to students in advance)**
4. Critiqued student work (provide to students in advance)
5. Self, peer and group evaluations (provide to students in advance)
6. **Explicate assignments' purpose, task, criteria in advance**

Other Transparency Techniques Utilized:

1. **Debrief graded tests and assignments in class.** The use of exam wrappers and discussion of most missed iRAT, quiz and HW questions covers this technique.
2. **Explicitly connect "how people learn" data with course activities when students struggle at difficult transition points.** A 40 min learning and study habit lecture from the first day of class is used as base knowledge and the course gets reminders about Bloom's taxonomy and what I hope different assignments or questions will achieve.
3. **Gauge students' understanding during class via peer work on questions that require students to apply concepts you've taught.** The Team-Based Learning format of class best exemplifies this technique.

Transparency Instruction with Less Transparency

MODULE 5 and 6 HW Assignments

Purpose:

1. Develop mastery of the following learning outcomes:

- Predict the consequences of different mutations.
- Differentiate between gene and allele.
- Explain what is meant by dominant and recessive.
- Perform monohybrid and dihybrid crosses to predict offspring genotype.
- Identify whether a trait is dominant or recessive in a family pedigree.
- Illustrate the steps of meiosis and describe how meiosis reduces chromosome number for a reproductive cell having a given diploid number.
- Describe the chromosomal theory of inheritance in relation to the laws of segregation and independent assortment.
- Describe the concept of linkage and how it contrasts to independent assortment.

Tasks:

1. You will write your answers (in **LEGIBLE** handwriting) to the questions on this assignment.
2. Your answers should be clear and in complete sentences and should demonstrate mastery of learning outcomes above and integrate these concepts to other learning outcomes from previous modules.

Background Information:

This homework assignment is based on a genetically inherited form of diabetes termed Permanent Neonatal Diabetes Mellitus or PNDM for short. In preparation completing this homework assignment please read the excerpts below about PNDM. These are direct quotes from the PNDM page from the Genetics Home Reference (a service of The US National Library of Medicine). If you would like to read the complete article, follow this link: <http://ghr.nlm.nih.gov/condition/permanent-neonatal-diabetes-mellitus>

“Permanent neonatal diabetes mellitus is a type of diabetes that first appears within the first 6 months of life and persists throughout the lifespan. This form of diabetes is characterized by high blood sugar levels (hyperglycemia) resulting from a shortage of the hormone insulin. Insulin controls how much glucose (a type of sugar) is passed from the blood into cells for conversion to energy. Individuals with permanent neonatal diabetes mellitus experience slow growth before birth (intrauterine growth retardation). Affected infants have hyperglycemia and an excessive loss of fluids (dehydration) and are unable to gain weight and grow at the expected rate (failure to thrive). In some cases, people with permanent neonatal diabetes mellitus also have certain neurological problems, including developmental delay and recurrent seizures (epilepsy). This combination of developmental delay, epilepsy, and neonatal diabetes is called DEND syndrome. Intermediate DEND syndrome is a similar combination but with milder developmental delay and without epilepsy. A small number of individuals with permanent neonatal diabetes mellitus have an underdeveloped pancreas. Because the pancreas produces digestive enzymes as well as secreting insulin and other hormones, affected individuals experience digestive problems such as fatty stools and an inability to absorb fat-soluble vitamins. Permanent neonatal diabetes mellitus may be caused by mutations in several genes.

About 30 percent of individuals with permanent neonatal diabetes mellitus have mutations in the KCNJ11 gene. An additional 20 percent of people with permanent neonatal diabetes mellitus have mutations in the ABCC8 gene. These genes provide instructions for making parts (subunits) of the ATP-sensitive potassium (K-ATP) channel. Each K-ATP channel consists of eight subunits, four produced from the KCNJ11 gene and four from the ABCC8 gene.

K-ATP channels are found across cell membranes in the insulin-secreting beta cells of the pancreas. These channels open and close in response to the amount of glucose in the bloodstream. Closure of the channels in response to increased glucose triggers the release of insulin out of beta cells and into the bloodstream, which helps control blood sugar levels.

Mutations in the KCNJ11 or ABCC8 gene that cause permanent neonatal diabetes mellitus result in K-ATP channels that do not close, leading to reduced insulin secretion from beta cells and impaired blood sugar control.

Mutations in the INS gene, which provides instructions for making insulin, have been identified in about 20 percent of individuals with permanent neonatal diabetes mellitus. Insulin is produced in a precursor form called proinsulin, which consists of a single chain of protein building blocks (amino acids). The proinsulin chain is cut (cleaved) to form individual pieces called the A and B chains, which are joined together by connections called disulfide bonds to form insulin. Mutations in the INS gene are believed to disrupt the cleavage of the proinsulin chain or the binding of the A and B chains to form insulin, leading to impaired blood sugar control."

PART A:

Mr. and Mrs. Sanchez recently had a baby girl (Susie) and she has been diagnosed with PNDM. Since treatment for PNDM varies depending on what the cause is, the pediatrician ordered DNA sequencing to look for mutations in genes associated with this disorder. Below are the DNA sequencing results that her pediatrician ordered.

Patient Name: Susan Sanchez

Age: 8 months

KCNJ11 gene:

1. 1 Change found in ONE copy of chromosome 11
2. Nucleotide 157 G to A
3. This change corresponds to the first nucleotide in the 53rd codon.
4. Wild-type codon reads GGC

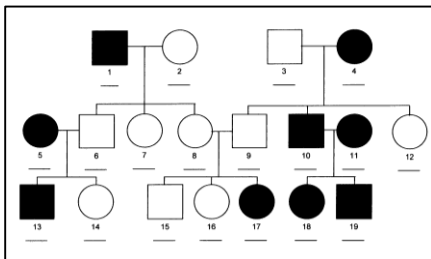
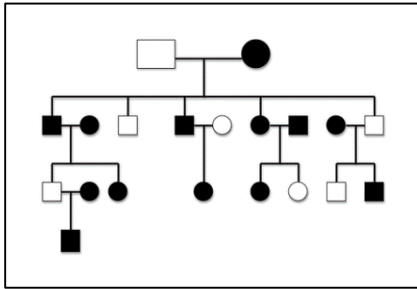
INS gene:

1. 1 Change found in ONE copy of chromosome 11
2. Nucleotide 218 A to G
3. This change corresponds to the third nucleotide in the 72nd codon.
4. Wild-type codon reads CGA

Question 1: Based on the results above, what mutation do you predict is contributing to Susie's phenotype? Justify your answer in 2 sentences or less.

Question 2: Data from the NCBI Gene Review database suggests that the **mode of inheritance** of PNDM is **autosomal dominant** for mutations in *KCNJ11* and **autosomal recessive** for mutations in *ABCC8* and *INS*. Based on this information and your answers to the question above, which of the following two pedigrees

representing PNDM likely represents Susie and her family (Circle one). Justify your answer using 3 sentences or less.

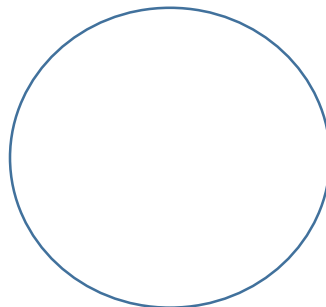


PART B:

Question 3. Susie is all grown up and she just married Carlos, an individual without a family history of PNDM and no hyperinsulinemia or diabetes diagnosis. Based on what you know about Susie what are the chances of her and Carlos having an offspring with PNDM? For full credit draw a Punnett square and list the phenotypic and genotypic ratios observed. Use D and d for your alleles to avoid any confusion.

PART C:

Question 4: Susie and Carlos are not only concerned about PNDM inheritance but also about inheriting polydactyly that runs in Susie's family. Assume Susie is heterozygous (Aa) for the Polydactyly mutation. Polydactyly is caused by a mutation in chromosome 13 and both the KCNJ11 and the INS genes are located in chromosome 11. For simplicity, let's track only those two chromosome pairs as they undergo Meiosis to produce Susie's mature oocytes (egg cells). Use the cell below to draw one example of how chromosomes 11 and 13 will be arranged during Metaphase I and then draw the results of the possible gametes (keep chromosomes condensed for easier visualization).



Question 5A: What are ALL the possible allele combinations for Susie's oocytes?

Question 5B: What would be the possible allele combinations if the polydactyly associated gene was located very close to KCNJ11 and INS genes on chromosome 11?

PART C:

Question 6: Susie is now 8 months pregnant and amniocentesis results confirm that her baby carries the same PNDM causing mutation that she has. Susie and Carlos are looking into possible treatments for PNDM. Evaluate the two treatments below and determine which would be the best option for their baby. For full credit discuss why a particular treatment would or would not work.

Treatment 1:

Oral Sulfonylurea: Sulfonylureas, a class of drugs used to treat type 2 diabetes mellitus, have been recently approved for the treatment of PNDM. They close K_{ATP} channels by an ATP-independent route, thereby causing insulin secretion.

Treatment 2:

Recombinant Insulin: An appropriate regimen of subcutaneous insulin administration should be established when the infant is stable and tolerating oral feedings. The longer-acting preparations with no significant peak-of-action effect such as Lantus® (glargine) or Levemir® (detemir) may work better in small infants.

Assignment Instruction with More Transparency

MODULE 5 and 6 HW Assignments

Purpose:

1. Develop mastery of the following learning outcomes:
 - Predict the consequences of different mutations.
 - Differentiate between gene and allele.
 - Explain what is meant by dominant and recessive.
 - Perform monohybrid and dihybrid crosses to predict offspring genotype.
 - Identify whether a trait is dominant or recessive in a family pedigree.
 - Illustrate the steps of meiosis and describe how meiosis reduces chromosome number for a reproductive cell having a given diploid number.
 - Describe the chromosomal theory of inheritance in relation to the laws of segregation and independent assortment.
 - Describe the concept of linkage and how it contrasts to independent assortment.

2. You will then **apply** this knowledge to a different situation, **evaluate** a set of given data, and **make a decision and propose a solution** based on all the information provided.

Tasks:

You will write your answers (in **LEGIBLE** handwriting) to the questions on this assignment.

Criteria for Success:

1. Your answers should be clear and in complete sentences and should demonstrate mastery of the learning outcomes above and integrate these concepts to other learning outcomes from previous modules.
2. When asked to justify your answer, the following are examples of excellent, acceptable and unacceptable(no credit) answers:

Excellent: *The single-nucleotide change responsible for sickle cell disease is caused by a missense mutation that results in a single amino acid substitution that alters the structural conformation of both hemoglobin and the red-blood cell itself. These structural changes greatly alter the ability of hemoglobin to transport oxygen and they cause red-blood cells to lodge at the entrance of capillaries resulting in poor blood oxygenation.*

Good: *The mutation in sickle cell causes a change in the amino-acid sequence resulting in altered shape of the hemoglobin protein and red-blood cell. Since structure is related to function, these changes lead to low oxygen levels being available to the tissues.*

Un-acceptable (no credit): *the mutation messes up protein function and this is why sickle cell disease is so bad.*

Transparency

Problem solving skills are well defined.

Criteria for success are defined.

Un-acceptable, good, excellent examples are given.

The rest of the instruction is omitted as it is the same as in the instruction with less transparency.

Biol3303 Implementation

Title of Project: Why is there such a dividing opinion on GMO food?

Problem/Scope of Project:

This assignment takes a look at a hot issue in the media on genetically modified organisms (GMO) as food. Through this assignment, students will learn the scientific facts on GMO and their impacts on the society through research on published literature and media. Students will also explore the reasons behind people's attitudes toward GMO food by reflecting on their own positions on this issue and by learning to support arguments with contextual facts.

High-Impact Practice(s) in place for course and for project: Problem solving in real life, collaborative learning

Description of initial sample and when will it be collected:

An individual pre-assignment self-reflection essay collected in Feb.

A team assignment on identifying GMO and related problems collected in March.

Description of final sample and when will it be collected:

An individual assignment to build a GMO survey collected in April.

Transparency Techniques:

1. Flexible formats appeal equitably to various learners' strengths
2. Build students' critical thinking skills in a logical sequence
6. Explicate assignments' purpose, task, criteria in advance

Other Transparency techniques Utilized:

3. Criteria for success (provide to students in advance)
4. Critiqued student work (provide to students in advance)

Assignment Instruction with Less Transparency

Why do people have divided opinions on GMO food?

Task

You will develop a survey to investigate people's position on GMO food and the reasons for their decisions. You each will develop 5 questions and conduct a preliminary analysis using the survey. As a class, we will develop a combined survey which can be used for GMO projects next semester.

Design of the survey

This will be carried out in the following order.

1. Your question is "why do people have different opinions on GMO food?" For this question, you will identify five reasons why people support or are concerned with GMO food, respectively. (10 points)

To do this, you should visit the wiki pages generated by the class on 10 examples of GMO food. You can do your research by going to the session "common attitudes toward this GMO" at the bottom of the page. You should come up with five reasons for each side of argument. These reasons could be based on the GMO food example you have worked on or another example by other groups. One reason can also be shared by more than one GMO example. A worksheet template is provided for you.

Table 1. The worksheet template for the reasons behind people's attitude on GMO food. You should ONLY use the 10 GMO examples in the wiki page constructed by our class. You may not copy and paste from the wiki page or use any other examples. If the wiki page does not provide enough information, you should do more research as necessary. Please fill in the table as directed.

Question	Why are there divided opinions on GMO food?	
Pertinent facts on GMO food in general	Here you should list some common general knowledge on GMO food. i.e. how is GMO usually generated? What are some common reasons for generating GMO food? How abundant is GMO food in our market? Etc.	
Reasons why people have a positive or negative attitude toward GMO?	Reasons for people to support GMO food	Specify at least one GMO example that the reason is based on.
1		
2		
3		
4		
5		
	Reasons for people against GMO food	Specify at least one GMO example that the reason is based on.
1		
2		
3		
4		
5		

2. Based on your worksheet, design 5 survey questions on GMO food. Pretend that this survey will be distributed to the UHD community that allows us to collect data on why people have different opinions on GMO food. Your questions should allow you to test whether any of the reasons in your worksheet plays a significant factor in one's decision. **For each survey question, specify which reason or factor it addresses and what interpretation can be made based on the choice.** (20 points)

A blank survey template is provided. You are encouraged to come up with two or more questions for each factor that affects one's position on GMO. For a survey, you should either use multiple choice questions or true or false format.

Table 2. Survey template for GMO attitudes. An example is given in gray. You should generate a table for each question.

Survey question 1		
Reason or factor it addresses	This comes from worksheet 1	
Types of responses	Multiple choice True or false Yes or no	Interpretation

3. Conduct a preliminary survey with yourself and your family. Comment on the finding of your survey by including the following points. (10 points)

- Do you think the results from the survey accurately reflected one's position on GMO and provided insights into the reasons behind their positions?

This should be 100 to 300 words. You should make general comments and refer to specific questions as necessary. Make suggestions for modification if needed.

- Is your survey broad enough to cover a range of attitude and different factors that affect one's position?

This should be 100-300 words. Make suggestions for modification if needed.

Checklist

1. Download the two worksheet templates.
2. Do your research on the wiki pages.
3. Complete the worksheet 1 with questions.
4. Complete the worksheet 2 with survey questions.
5. Conduct a preliminary survey with your family or friends.
6. Combine all documents into one Microsoft word file and submit it to BBL dropbox before April 27th midnight.
7. Complete a post assignment survey posted in BBL before April 30th midnight.
8. Thank you!

Assignment Instruction with More Transparency

Why do people have divided opinions on GMO food?

A PPT version of the instruction is also available in BBL.

Purpose

You will demonstrate the following knowledge and skills in this assignment

- Demonstrate basic knowledge on GMO food in general and specifically in at least one example
- Identify problems related to the common attitudes toward GMO food among the public
- Design a strategy to evaluate the problems identified
- Present sufficient arguments or rationales for decisions

Task

You will develop a survey to investigate people's position on GMO food and the reasons for their decisions. You each will develop 5 questions and conduct a preliminary analysis using the survey. As a class, we will develop a combined survey which can be used for GMO projects next semester.

Rationale

In order to design a good survey, we first have to identify the key factors that affect people's opinions and attitude toward the topic. For example, one factor that could play a role is the lack of education or knowledge on GMO food. Do you think this factor could apply to you? Specifically, you have now reflected on your own position, explored in depth one example of GMO food and addressed the top five questions for that example. Does this gain of knowledge or exposure to the constructive discussion strengthen your belief, shift your position, or even change your mind? Do you think that applies to the general public? In turn, designing a good survey and collecting data can help us understand more the gap between people on opposite sides. This knowledge can be beneficial in many ways. The companies who generate GMO food can use this information to make better products. Schools and government agencies can use this information to clarify misconceptions and provide educational opportunities to the general public. Policy makers can make better informed decisions given more insights into people's thoughts and concerns. Consumers can gain by receiving information through the process.

Transparency

Alternative format is provided for different learners.

Purpose and rationale are explicated in the assignment.

Design of the survey and criteria for success

This will be carried out in the following order.

4. Your question is "why do people have different opinions on GMO food?" For this question, you will identify five reasons why people support or are concerned with GMO food, respectively. (10 points)

To do this, you should visit the wiki pages generated by the class on 10 examples of GMO food. You can do your research by going to the session “common attitudes toward this GMO” at the bottom of the page. You should come up with five reasons for each side of argument. These reasons could be based on the GMO food example you have worked on or another example by other groups. One reason can also be shared by more than one GMO example. A worksheet template is provided for you.

Table 1. The worksheet template for the reasons behind people’s attitude on GMO food. You should ONLY use the 10 GMO examples in the wiki page constructed by our class. You may not copy and paste from the wiki page or use any other examples. If the wiki page does not provide enough information, you should do more research as necessary. Please fill in the table as directed. Examples are given in gray.

Question	Why are there divided opinions on GMO food?	
Pertinent facts on GMO food in general	Here you should list some common general knowledge on GMO food. i.e. how is GMO usually generated? What are some common reasons for generating GMO food? How abundant is GMO food in our market? Etc. Example: GMO food comes from genetically modified organisms. A gene is transferred into the host genome using the recombinant DNA technology and can be stably passed on to future generations.	
Reasons why people have a positive or negative attitude toward GMO?	Reasons for people to support GMO food	Specify at least one GMO example that the reason is based on.
Example	People believe that GMO crops can be more resistant to harsh conditions such as drought, therefore, can increase the crop yield and land productivity	Corn is genetically modified with CspA and CspB, encoding for cold stress proteins.
1		
2		
3		
4		
5		
	Reasons for people against GMO food	Specify at least one GMO example that the reason is based on.
Example	People think that GMO food may be harmful to one’s health because it contains hazardous chemicals	Bt-corn is genetically modified with Bt toxin genes encoding for Cry1Ac and Cry1I like proteins.
1		
2		
3		
4		
5		

Transparency

In addition to the instruction, examples were given.

5. Based on your worksheet, design 5 survey questions on GMO food. Pretend that this survey will be distributed to the UHD community that allows us to collect data on why people have different opinions on GMO food. Your questions should allow you to test whether any of the reasons in your worksheet plays a significant factor in one's decision. **For each survey question, specify which reason or factor it addresses and what interpretation can be made based on the choice.** (20 points)

A blank survey template is provided. You are encouraged to come up with two or more questions for each factor that affects one's position on GMO. For a survey, you should either use multiple choice questions or true or false format.

Table 2. Survey template for GMO attitudes. An example is given in gray. You should generate a table for each question.

Survey question 1	Which of the following is true with Bt-corn?	
Reason or factor it addresses	1. People lack knowledge on GMO food. 2. People think that GMO food may be harmful to one's health because it contains hazardous chemicals	
Types of responses	Choose the statement that you mostly agree with.	Interpretation
	A. I have never heard of Bt-corn before.	This individual lack knowledge on this GMO food
	B. I have heard of Bt-corn before, but I don't know anything about details.	This individual has limited knowledge on this GMO food
	C. I know Bt-corn. It is genetically modified to produce pesticide that can be harmful to people.	This individual has knowledge of Bt-corn and is very concerned about the health hazard it may have
	D. I know Bt-corn. It is genetically modified as the alternative to traditional pesticides. The toxins it generates is not harmful to humans based on current study.	This individual has knowledge on Bt-corn and has done some research on the issue.
	E. I know Bt-corn. It is genetically modified as the alternative to traditional pesticides. Not enough study is done to know whether the toxins it generates is harmful to humans.	This individual has knowledge on Bt-corn and has done some research on the issue, but he is critical of the current study and wants more evidence.

3. Conduct a preliminary survey with yourself and your family. Comment on the finding of your survey by including the following points. (10 points)

- Do you think the results from the survey accurately reflected one's position on GMO and provided insights into the reasons behind their positions?

This should be 100 to 300 words. You should make general comments and refer to specific questions as necessary. If there is a discrepancy between the survey results and self-identified position, specify the question and suggest any modification to the question.

- Is your survey broad enough to cover a range of attitude and different factors that affect one's position?

This should be 100-300 words. The survey is considered broad if it addresses four or five factors identified in your worksheet and show a range of responses from you and your family. The survey is too narrow if it only addresses one or two factors in the worksheet, or, showed the same answers for everyone. Suggest any modification to the survey questions so it can capture a wide range of responses.

Some useful resources on how to write surveys

1. http://help.surveymonkey.com/articles/en_US/kb/5-Tips-for-Writing-a-Great-Survey
2. [How to write clear choice questions? https://www.youtube.com/watch?v=a9nf65nZO8c](http://www.youtube.com/watch?v=a9nf65nZO8c)
3. [How to write yes or no questions? https://www.youtube.com/watch?v=TGr1VLvfGns](http://www.youtube.com/watch?v=TGr1VLvfGns)

Transparency
Criteria are more defined.

More tools are provided to assist the completion of the assignment.

Checklist

1. Download the two worksheet templates.
2. Do your research on the wiki pages under GMO assignment 2015 portal under my organizations.
3. Complete the worksheet 1 with questions.
4. Complete the worksheet 2 with survey questions.
5. Conduct a preliminary survey with your family or friends.
6. Combine all documents into one Microsoft word file and submit it to BBL dropbox before April 27th midnight.
7. Complete a post assignment survey posted in BBL before April 30th midnight.
8. Thank you!

PED3301 Implementation

Instructor: John Kelly

Course info: Intro. To Special Populations PED 3301: CRN 21234 (Control); 21235 (Experimental)
Online with ~40 students in each

Title of Project: Wiki – Differentiating Instruction

Problem/Scope of Project:

This assignment requires students to learn how to differentiate instruction for 6 different disability groups. Through this assignment, students will learn how to develop accommodations in 5 different domains (content, instruction, setting, behavior, and affect) that will be implemented in their lessons to enable students with disabilities to access their classroom and course content in order to facilitate learning environment for all students. In addition, students will be asked to develop collaborative Teams in and online environment to complete the Wiki – Differentiating Instruction Assignment.

High-Impact Practice(s) in place for course and for project: Problem solving in real life, collaborative learning

Description of initial sample and when will it be collected:

Course Survey on prior experience in doing group work was collected in Feb.

Initial Individual assignment work was collected in Feb.

Initial Team assignment work was collected in Feb.

Description of final sample and when will it be collected:

Course Survey on Team and individual experience was collected in April.

Final Individual assignment work was collected in April.

Final Team assignment work was collected in April.

Transparency Techniques:

1. Flexible formats appeal equitably to various learners' strengths
2. Build students' critical thinking skills in a logical sequence
3. Criteria for success (provide to students in advance)
4. Critiqued student work (provide to students in advance)
5. Explicate assignments' purpose, task, criteria in advance

Assignment Instruction with Less Transparency

Written Instruction on how to complete the 5 Wiki- Differentiating Assignments.

1. Complete IRIS 2 - UDL, IRIS 3 - Differentiating Instruction. These should provide you with the background information and tools needed to help you complete the tasks for Wiki – Differentiating Instruction for each of the 5 disabilities. Differentiating is a critical skill needed by today's teachers in the classroom.
2. Click the Wiki – Differentiating in the Blue Box. Your computer screen will open to a folder called Differentiating Instruction followed by six (6) Wikis – one for each of 6 disabilities: 5 are mandatory and 1 is for extra credit.
3. Open the Differentiating Instruction folder and you will find: a purple button (Wiki – Differentiating) that is a virtual recording of how to complete the Wiki assignment, a PPT called Differentiating Instruction Basics, an Accommodation List (by disability), and a PPT called Researched Based Instructional Strategies for UDL. This folder contains the basic instruction for implementing the Kelly Model and the 5 domains for student learning for each of the 5 Wikis.
4. Watch the recording first. It will explain everything: how to access the Wikis and the instructions on how to complete a Wiki – Differentiating.
5. Review the other 3 items in this folder: Differentiating Instruction Basics (PPTs.), Accommodations (list by disability), and Research Based Instructional Strategies for UDL. You are now ready to begin the exercise of differentiating instruction for a specific disability.
6. To begin, scroll to the first disability, Ch 5 Differentiating LD - Dyslexia (10 pts.). Review the Scenario and instructions.
7. Go to the Learning Modules and access the Ch 5-8 Content Information link found in the Chapter 5-8 Module at the top. This folder contains the Chapter Lecture PPTs for each disability in the Module, which are followed by the Differentiating PPTs for each disability.
8. Review the PPT for LD and use the ideas, the information from the textbook, the accommodation list, and the Research Based Instructional Strategies PPTs to develop accommodation ideas, one for each of the 5 domains for that disability. The Kelly Model will help you organize your ideas.
9. The 5 accommodations you develop for LD should then be posted to the Wiki for LD. To do this, you need go back to the Wiki that has the scenario and instructions, and click the Title, Ch 5 Differentiating LD - Dyslexia (10 pts.). Clicking the title should take you to the Wiki for LD and any work that has been posted for that disability – Wiki for LD includes 2 examples I have submitted to get you started. Other student's may also have already posted their work. Review what other students have submitted so you don't duplicate their ideas.
10. To complete the Wiki assignment and receive credit for your work, you need to post your ideas on differentiated instruction for that disability. At the top of the Wiki for LD, click Create a Wiki. This will take you to a blank Wiki. Give it a title, paste your work in the submission box, and then press submit. I will grade it and give you feed back. If you do not get full credit, you may go back and edit your work there in the Wiki. Please let me know so I can award you the additional points.

Note: The Wiki for each disability is set up the same way. Please You must do 5 of the 6 Wikis - 10 pts. each for a total of 50 pts. Posting a 6th is worth 10 extra points.

Assignment Instruction with More Transparency

Wiki Instructions

1. To begin, scroll to the first disability, Ch 5 Differentiating LD - Dyslexia (10 pts.). Review the Scenario and instructions.
2. Go to the Learning Modules and access the Ch 5-8 Content Information link found in the Chapter 5-8 Module at the top. This folder contains the Chapter Lecture PPTs for each disability in the Module, which are followed by the Differentiating PPTs for each disability.
3. Review the PPT for LD and use the ideas, the information from the textbook, the accommodation list, and the Research Based Instructional Strategies PPTs to develop UDL/Accommodation ideas, one for each of the 5 domains for that disability. The Kelly Model will help you organize your ideas.

Note: Bb Collaborate (Student Team Meeting Rooms) will act as your synchronous communication platform. However, you also can use Zoom, Google hangouts, Skype or a cell phone. For working on Assignment documents together synchronously or asynchronously, you have Office 365, Group Tools, or Google Docs to do group work together. All instructions for completing the Wiki Assignments are found in the Wiki – Differentiating Link that is located in the Blue Box on left or the link on the Home page. Click either one. It will take you to the Wiki page where you will find a Differentiating Folder and 6 Wiki – Differentiating Assignments. If at any time you are perplexed about working in a virtual world, you can always contact me or even better you have the Bb and IT Student Help desk to serve you.

4. The one UDL idea and the 5 accommodations you develop for your team should then be posted to the Wiki for LD. To do this, you need go back to the Differentiating for LD page that contains the scenario and instructions, and click the Title, Ch 5 Differentiating LD - Dyslexia (10 pts.). Clicking the title should take you to the Wiki page where you will post your Teams UDL/Accommodation ideas to the Create a Wiki. If others have posted, you need to review what other students have submitted so you don't duplicate their ideas.
5. To complete the Wiki assignment and receive credit for your individual work, each Team member should post his or her UDL/Accommodation ideas on differentiated instruction for that disability in the Individual Assignment link provided in the folder for that disability. I will grade it and give you feed back.
6. Once every Team has posted their ideas we will do a gallery walk and choose the best presentation. The team chosen will get 5 extra points for the best ideas.

Note: The Wiki for each disability is set up the same way. You must do 5 of the 6 Wikis - 10 pts. each for a total of 50 pts. Posting a 6th is worth 10 extra points. Each Team member will get 5 points for their individual work and 5 points for the group work.

Transparency

Instructions are step by step.

Expectations for collaboration among students are defined. Tools and resources for help are clearly given.

COMM3315 Implementation

Instructor: Creshema Murray

Course info: COMM 3315: Small Group Communication CRN 21399 (Control); 21569 (Experimental)

Control: Online, 26 Students enrolled; Experimental: Face-to-Face, 16 Students enrolled

Title of Project: Individual Analysis

Problem/Scope of Project: This assignment provides students with the opportunity to assess their experiences in groups prior to being enrolled in Small Group Communication while sharing how the course has changed their view of group experiences. At the completion of the 16-week semester, students will focus on their experience in the class and in their small group, focusing on their understanding of group process. Student will write a 4-5 page paper analyzing their group (for example, their group roles and those of other members, conflicts they experienced, and what they have learned). The paper will also address their future plans for using the knowledge and experience they have gained in this class in the future. In addition, students will address how they think the experiences in this class will influence their future group experiences?

High-Impact Practice(s) in place for course and for project: Collaborative Assignments and Projects; Service Learning, Community Based Learning

Description of initial sample and when will it be collected: Course Introduction Paper was collected during the first week of class. The introduction paper highlighted students previous group experiences and what they believed they would learn from this project based on their enrollment in the course.

Description of final sample and when will it be collected: The final project, the Individual Analysis Paper, was collected on the last day of class. This paper highlighted overall experiences in the course based on five different small group topics.

Transparency Techniques:

1. Students worked on the final paper throughout the semester building on the information they submitted on their introduction paper.
2. Provided critiques of paper throughout the semester
3. Provided a sample of previous students work
4. Provided a sample of questions that should be addressed in the final paper
5. Provided students with a formal grading rubric

Assignment Instruction with Less Transparency

Individual Analysis Paper (100 Points):

SOME GUIDELINES ON WRITING ABOUT THE GROUP EXPERIENCE

You have been working in your individual groups/teams for a semester. As you begin the process of writing about the experience, it is assumed that the group took notes and that individuals keep track of the process. In writing your analysis, think carefully about what happened during the semester and why you believe it happened. The guidelines below will help you with the paper. Also address your future plans for using the knowledge and experience you have gained in this class in the future. How do you think the experiences in this class will influence your future group experiences?

*Here are some questions that might help guide you.

Group Development

1. How attractive was the group to the members in the beginning?
2. How did this feeling change? What was the general climate of the group?
3. What group standards developed? What effects did they have on the group?
4. How were the standards established and enforced?
5. How was authority developed?
6. What kinds of status structure developed?

Group Process

1. How did the group go about planning its work? Did it consciously plan its activities or did it work in an unplanned way?
2. How did members accept work responsibilities?
3. What was the group able to establish meaningful goals for its activities?
4. Were members willing and able to be relevant and discipline themselves to the tasks at hand?
5. Were individual needs met through these contributions? Why/why not?
6. Did the group make effective use of its resources? Why/why not?
7. What might have helped this group become more productive?

Group Role in the Group

1. What was your role in the group? Be specific.
2. Did you find it attractive?
3. How were your typical contributions to the group received?
4. How did the relationship to the group change during the time you worked together?
5. What was the most meaningful to you in this group experience?
6. What helped you gain more understanding about your own role in groups?

Virtual Group Experience

1. What did working in a virtual group teach you?
2. How successful were you working in a virtual group?
3. What would you do differently?
4. What was the best mode of technology?
5. What mode of technology did not work well?
6. What advice would you share with future virtual groups?

Assignment Instruction with More Transparency

Group Analysis Paper (100 Points):

SOME GUIDELINES ON WRITING ABOUT THE GROUP EXPERIENCE

You have been working in your individual groups/teams for a semester. As you begin the process of writing about the experience, it is assumed that the group took notes and that individuals keep track of the process. In writing your analysis, think carefully about what happened during the semester and why you believe it happened. The guidelines below will help you with the paper. Also address your future plans for using the knowledge and experience you have gained in this class in the future. How do you think the experiences in this class will influence your future group experiences?

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5. What was the most meaningful to you in this group experience?
6. What helped you gain more understanding about your own role in groups?

WRITTEN ASSIGNMENT FEEDBACK*

Transparency

Self/peer feedback process is implemented

Student/Group Name: _____	Date: _____
Course: Small Group Communication	Assignment: Group Analysis Paper

Content/Development – 50 points

Subject Matter: ○ Key elements of assignment covered ○ Content is comprehensive/accurate/persuasive ○ Displays an understanding of relevant theory ○ Major points supported by specific details/examples ○ Research is adequate/timely ○ Writer has gone beyond textbook for resources	
Higher-Order Thinking: ○ Writer compares/contrasts/integrates theory/subject matter with work environment/experience ○ At an appropriate level the writer analyzes and synthesizes theory/practice to develop new ideas and ways of conceptualizing and performing.	

Organization – 20 points

○ The introduction provides a sufficient background on the topic and previews major points. ○ Central theme/purpose is immediately clear ○ Structure is clear, logical, and easy to follow ○ Subsequent sections develop/support the central theme. ○ Conclusion/recommendations follow logically from the body of the paper.	
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Style/Mechanics – 30 points

Format – 10 points ○ Citations/reference page follows guidelines ○ Properly cites ideas/info from other sources ○ Paper laid out effectively – uses heading and other reader-friendly tools. ○ Paper is neat/shows attention to detail.	
Grammar/Punctuation/Spelling – 10 points ○ Rules of grammar, usage, and punctuation are followed. ○ Spelling is correct.	
Readability/Style – 10 points ○ Sentences are complete, clear, and concise ○ Sentences are well constructed with consistently strong, varied structure ○ Transitions between sentences/paragraphs/sections help maintain the flow of thought. ○ The tone is appropriate to the audience, content, and assignment.	

Comments/Grade:

Acknowledgement and Resources

The designs of problem centered learning assignment and implementation of transparency methods were based on the VALUE problem solving rubric and transparency methods according to AAC&U LEAP project “Advancing Underserved Student Success Through Faculty Intentionality in Problem-Centered Learning”. Full training workshops may be available in the calendar year 2015-2016 from CTLE.

This work received support from CTLE and AAC&U LEAP project. Special thanks to Dr. Greg Dement and Dr. Chris Birchak for providing this opportunity for the team.

Resources

AAC&U. VALUE rubrics. <https://www.aacu.org/value-rubrics>

AAC&U. Advancing underserved student success through faculty intentionality in problem-centered learning. <https://www.aacu.org/problemcenteredlearning>

Mary-Ann Winkelmes. Transparency in teaching: faculty share data and improve students' learning. Liberal Education. Vol.99, No. 2. 2013