Examples for

Developing Tutorial Learning Outcomes

UNIVERSITY OF TORONTO

CENTRE FOR TEACHING SUPPORT & INNOVATION

EXAMPLES FOR DEVELOPING TUTORIAL LEARNING OUTCOMES[1]

DISCLAIMER: The examples provided in this document are intended to serve as examples of how you can develop your tutorial learning outcomes based on your course learning outcomes. We have categorized the different examples into the different undergraduate divisions at the University of Toronto. This is not intended to be a comprehensive list but to provide you with exemplars to develop your own tutorial learning outcomes.

DIVISION 1: HUMANITIES | CATEGORIES OF TUTORIALS: DISCUSSION-BASED; SKILL DEVELOPMENT; REVIEW

1. Comparative Literature:

• **Course learning outcome:** By the end of the course, students will be able to *identify* important subgenres within the tradition of life writing and *connect* them to theoretical discourses surrounding memory, subjectivity, identity, truth, and history.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *identify* what formal life writing conventions authors use, and how they vary across subgenres.
• **Goal for tutorial:** Tutorials will provide a forum for students to practice their independent analysis of the primary texts, and to review and respond to the theoretical interpretations presented during lecture.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *discuss* what, if anything, visual representations of life events (as in the graphic memoir/biography/autobiography) add to how we interpret the events portrayed by the author.
Tutorial learning activity: Students will *compare* how the authors of *Maus* and *Fun Home,* both graphic memoirs, represent themselves visually and textually.	

2. English:

• **Course learning outcome:** By the end of this course, students will be able to *define* and *demonstrate* an understanding of the major aesthetic movements, and their connection to the socio-political climate, in Victorian realist novels.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to perform an independent analysis of a new (or unfamiliar) Victorian realist novel, informed by the socio-political context presented during lecture.
• **Goal for tutorial:** Tutorials will give students the opportunity to *practice* their independent analysis of the primary texts, and to *review* and *apply* the socio-political contexts presented during lecture to deepen their own close readings.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *identify* two formal features that reflect the impact of British manufacturing on Dickens' *Great Expectations*.
• **Tutorial learning activity:** Small group discussion with targeted grid, tracking references to British manufacturing in *Great Expectations;* small group discussion will be followed by a large group discussion.	

[1] All learning verbs are indicated in *italics*

3. History:

• **Course learning outcome:** By the end of the course, students will be able to *articulate* and *argue* the major influences of one key historical figure in Modern Western civilization in a term paper.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *develop* and *defend* an argument for the major influences of one of the key historical figures in Modern Western civilization.
• **Goal for tutorial:** The tutorials for this course will provide students with an opportunity to develop arguments in an oral and written form.	• **Specific tutorial learning outcome:** By the end of the tutorial, students will be able to *compile* evidence from sources (course readings, etc.) and *draft* a 1 page argument in answer to the following question: Who were (their selected key historical figures') major influences?
• **Tutorial learning activity:** Students will be presented with a format to follow and will spend time in the tutorial *constructing* the argument and then share their document with a peer. Students will give feedback to each other on their one-page arguments based on the criteria provided by the TA.	

4. Philosophy:

• **Course learning outcome:** By the end of the course, students will be able to *formulate*, *express* and *defend* different positions on the moral status of animals as understood in contemporary philosophies of animal rights.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *compare* how specific philosophers use reason to advance positions about animal rights.
• **Goal for tutorial:** Tutorials will give students the opportunity to discuss how philosophers use reason to articulate and support their arguments about animal rights.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *distinguish* between the intrinsic and instrumental value of animals.
• **Tutorial learning activity:** Students will come to class with prepared statements that articulate a position on whether animals have either intrinsic or instrumental value. Students will exchange their statements with someone who argues differently, and will articulate that opposing position.	

4. Spanish:

• **Course learning outcome:** By the end of the course, students will be able to *formulate* grammatically correct basic level conversations in Spanish. .	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to practice their oral Spanish in conversation with each other by focusing on a variety of useful real-life scenarios.
• **Goal for tutorial:** Tutorials will provide students with the opportunity to interact with each other in an immersive Spanish environment.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *identify* when it is appropriate to use different verbs for "to be" (ser and estar) in conversational Spanish.
• **Tutorial learning activity:** In pairs, students will *recite* a variety of prepared (written) scenarios, choose whether the appropriate verb is ser or estar, and conjugate the verb in conversation.	

DIVISION 2: SOCIAL SCIENCES | CATEGORIES OF TUTORIALS: DISCUSSION-BASED; SKILL DEVELOPMENT; REVIEW

1. Economics:

• **Course learning outcome:** Course learning outcome: By the end of the course, students will be able to *practice* how to collect and aggregate data from the online databases of a range of international financial institutions.	• **Overall tutorial learning outcome:** By the end of this semester, students will be able to *compile* comparative data that represents long-term trends in purchasing power parity for three advanced industrial democracies.
• **Goal for tutorial:** Each week, students will explore how a different international financial institution selects, emphasizes and presents data relating to the economic performance of states.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will *demonstrate* the capacity to navigate the World Bank's data catalog.
Tutorial learning activity: Students will *compile* comparative data that represents long-term trends in purchasing power parity for three advanced industrial democracies using the data catalog of the World Bank (datacatalog.worldbank.org).	

2. Education:

• **Course learning outcome:** By the end of the course, students will be able to *summarize* the author's supporting evidence and *assess* its effectiveness in supporting his/her main argument in course texts.	• **Overall tutorial learning outcome:**By the end of the tutorial, students will be able to *identify* key ideas/themes in course texts and *differentiate* between arguments and supporting evidence.
• **Goal for tutorial:** Tutorials will give students an opportunity to practice the reading and writing skills needed to write effective arguments.	• **Specific tutorial learning outcome:** By the end of the tutorial, students will be able to *identify* key ideas and themes in chapter one of Paolo Freire's *Pedagogy of the Oppressed*.
• **Tutorial learning activity:** Tutorial learning activity: Students will meet in small groups and discuss key ideas and themes in the assigned readings. They will then share these key ideas and themes with the larger class.	

3. Geography:

• **Course learning outcome:** By the end of the course, students will be able to *compare* and *contrast* the different factors that influence population growth.	• **Overall tutorial learning outcome:** By the end of the year, students will be able to *identify* the different factors that influence population growth and *assess* their magnitudes of weakness.
• **Goal for tutorial:** Tutorials will give students the opportunity to look more in-depth at concepts discussed in the lecture so that they are able to evaluate population growth factors.	• **Specific tutorial learning outcome:** By the end of the tutorial, students will be able to *identify* and *define* the two key factors that influence population growth and *explain* why they have identified these particular factors as 'key' factors.
• **Tutorial learning activity:** Working with a partner, students will choose the two factors that they consider to be the 'key' factors influencing population growth and *assign* reasons to back up their choices. Students will then be asked to share their main arguments with the larger class.	

4. Political Science:

• **Course learning outcome:** By the end of the course, students will be able to evaluate the legitimacy of different explanations for democratic transitions.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *collaborate* to *create* a taxonomy of different outcomes of democratization processes in the 20th century.
• **Goal for tutorial:** Tutorials will allow students to compare the nuances of scholarly explanations for why and how democratization happens.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *define* and *distinguish* necessary and sufficient conditions.
• **Tutorial learning activity:** Drawing from the week's required readings, students will break up into pairs and *identify* which conditions the authors identify as necessary or sufficient for the process of democratization.	

5. Sociology:

• **Course learning outcome:** By the end of this course, students will be able to *differentiate* between the major theoretical approaches to race and ethnicity in sociology.	• **Overall tutorial learning outcome:** By the end of the year, students should be able to *compare*, *contrast*, and *critique* different authors' approaches to race and ethnicity.
• **Goal for tutorial:** Tutorials will give students the opportunity to participate in small group discussions and structured debates in order to explore key texts in the sociological study of race and ethnicity	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *distinguish* between primordialist and constructivist definitions of ethnicity.
• **Tutorial learning activity:** In groups of three, students will *identify* the thesis statements of three of this week's readings and *discuss* how they reflect primordialist or constructivist paradigms.	

DIVISION 3: PHYSICAL SCIENCES | CATEGORIES OF TUTORIALS: DISCUSSION-BASED; SKILL DEVELOPMENT; REVIEW; LABORATORIES/ PRACTICALS

1. Engineering Calculus 1:

• **Course learning outcome:** By the end of the course, students will be able to *identify* the role of calculus in problem solving through developing functions that describe real systems or at least model them closely	• **Overall tutorial learning outcome:** By the end of the year, students will be able to *analyze* the graphs of a polynomial, exponential and logarithmic function and *apply* the concept of the limit of the function to determine the function's rate-of-change through time.
• **Goal for tutorial:** The tutorials for this class will provide students with an opportunity to practice the theories discussed in class through small group work facilitated by a TA.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *apply* algebraic theory to construct graphs of functions and *analyze* their behaviours.
Tutorial learning activity: In this tutorial you and a small group will *reconstruct* a function from its rate of change by finding its anti-derivative and present your findings to the class through each giving a 1 min explanation/discussion of either the graphical representation of a function derived from the rate-of-change, the determination of the anti-derivative, the assumptions made and/or problems that arose during the process of solving your group's problem.	

2. Math Sciences:

• **Course learning outcome:** By the end of the course, students will be able to *apply* ANOVA statistical analysis to specific cases.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *identify* the different steps in statistical analysis and *assign* statistical processes to different cases
• **Goal for tutorial:** Tutorials will provide students with the opportunity to *review* the different steps in statistical analysis in order to apply it to specific cases.	• **Specific tutorial learning outcome:** By the end of the tutorial, students will be able to *identify* and *define* the different steps in statistical analysis.
• **Tutorial learning activity:** Students will be given problem sets to solve in groups. Answers will be taken up in class and groups will both *identify* and *define* the different steps.	

DIVISION 4: LIFE SCIENCES | CHOOSE: SKILL DEVELOPMENT TUTORIALS; REVIEW/Q&A SESSIONS; LABORATORIES/PRACTICALS (SEE BELOW)

1. Counselling Psychology:

• **Course learning outcome:** By the end of this course, students will be able to *compare* and *contrast* the different approaches to trauma work.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *identify* the different approaches to trauma work and *evaluate* the positive and negative aspects of each different type.
• **Goal for tutorial:** Tutorials will give students the opportunity to critically evaluate the different approaches to trauma work.	• **Specific tutorial learning outcome:** By the end of the tutorial, students will be able to *identify* different approaches to trauma work and to *identify* the criteria that will be used in evaluating each approach.
Tutorial learning activity: Students will be given a list of 'facts' about HIV/AIDS globally and will be asked to identify one myth from the list, using material from course lectures and readings. Students will then form groups based on the myth they have chosen and *explain* to others in the class why it is a myth.	

2. Medical Anthropology:

• **Course learning outcome:** By the end of the course, students will be able to *construct* a realistic picture of HIV/AIDS globally.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *identify* the myths about HIV/AIDS globally.
• **Goal for tutorial:** Tutorials will provide students with the opportunity to *discuss* the implications of the myths and to *construct* a realistic picture of HIV/AIDS globally.	• **Specific tutorial learning outcome:** : By the end of the tutorial, students will be able to *identify* one myth about HIV/AIDS and *explain* why it is a myth.
Tutorial learning activity: Large group discussion featuring targeted questions about the different approaches. Group work assignment that requires students *compare* and *contrast* different approaches to trauma work- handout that provides criteria for evaluating approaches.	

DIVISIONS III AND IV: LABORATORIES/PRACTICALS | CATEGORIES OF TUTORIALS: DISCUSSION-BASED; SKILL DEVELOPMENT; REVIEW; LABORATORIES/PRACTICALS

1. Earth Sciences:

• **Course learning outcome:** By the end of this course, students will be able to *classify* all of the major rock types by *identifying* the common rock-forming minerals and how they *relate* to the major element composition.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *apply* the skills needed to use a petrographic microscope in order to determine the physical properties of a mineral grain in order to *identify* it and *estimate* the modal abundance of each of the minerals so that it can be *plotted* on a ternary classification diagram
• **Goal for tutorial:** Tutorials will provide students with the opportunity to learn how to use a petrographic microscope to identify the mineralogy of a rock, and how to use the modal mineralogy classification schemes to name different rock types.	• **Specific tutorial learning outcome:** By the end of this lab, students will be able to apply the Dunham classification scheme to carbonate rock and be able to *identify* and *sketch* common carbonate rock textures/features in both hand specimen & in thin section.
Tutorial learning activity: In this lab you will *examine* multiple rock samples, and *describe* them using known mineralogy and the new textural terminology given in class in order to determine the type of rock.	

2. Inorganic Chemistry:

• **Course learning outcome:** By the end of this course, you will be able to *identify* the relationships between the shape and symmetry in simple molecules.	• **Overall tutorial learning outcome:** By the end of the semester, you will be able to *identify* the essential parts of a problem and *formulate* a strategy for solving the problem.
• **Goal for tutorial:** In the tutorials, students will learn to identify the different subgroups of Group Theory and to apply it to describe the structure of simple molecules.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *quantify* the Jahn-Teller effect from a IR ABS spectrum and use this to *interpret* the structural role of iron.
Tutorial learning activity: In this lab, you will measure the infrared absorbance spectra and *determine* the magnitude of peak-splitting and *compare* this to the theoretical splitting values determined from the Jahn-Teller effect.	

3. Computer Science:

• **Course learning outcome:** By the end of this course, you will be able *apply* problem-solving principles of effective code structure, problem division and sub-code connection to *solve* specific computer programming problem sets.	• **Overall tutorial learning outcome:** By the end of the semester, students will be able to *apply* problem solving principles to write a clear and concise code that makes a robot move and navigate a maze, completely free of human invention.

• **Goal for tutorial:** Through the tutorials, students will learn how to build codes for motor movement and sensors, how to input information feedback from sensors and move a robot in a 3D environment.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *apply* problem solving principles to *create* a code that allows a robot to move in a straight line, square and circle.
Tutorial learning activity: Drawing from the codes provided in class, students will *translate* the robot construction process into python code.	

4. Civil Engineering:

• **Course learning outcome:** By the end of this course, students will be able to *describe* the energy of a system.	• **Overall tutorial learning outcome:** By the end of the term, students will be able to *define* and *differentiate* between the necessary components in each of the major energy systems and where efficiency is lost or gained in that system or a given system.
• **Goal for tutorial:** These tutorials will expose students everything they need to create a variety of energy systems from the internal combustion system, to wind turbines to solar panels, and understand how they work to produce one type of energy from another.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *describe* the components of a wind turbine, *examine* the functionality of its components by contrasting different styles of turbines and *assess* their efficiency in converting wind to electricity.
Tutorial learning activity: In this lab you will *compare* the efficiency based on two case studies of equal-sized wind farms in Denmark and South Korea over a 5 year period and use this data to *produce* a report detailing the durability of the two different types of wind turbines and their contribution to their respective communities and *determine* whether these projects were good investments for the respective communities.	

5. Biology:

• **Course learning outcome:** By the end of the course, students will be able to *describe* animal physiology at the cellular level in terms of both chemical and physical means.	• **Overall tutorial learning outcome:** By the end of the term, students will be able to competently *discuss* the physiology of most animals on Earth through carrying out experiments, data reduction, comparative analysis and be able to *communicate* these ideas in a clearly and concisely formatted scientific paper.
• **Goal for tutorial:** Tutorials will be used to learn core concepts surrounding homeostasis and regulatory function of the different body systems as well as providing an opportunity for students to carry out comparative studies between the systems of a variety of animals.	• **Specific tutorial learning outcome:** By the end of this tutorial, students will be able to *describe* how the endocrine system interacts with the reproductive system in order to maintain homeostasis.
Tutorial learning activity: To accomplish the above outcome, students will dissect the reproductive system of a fetal pig and look at the different cell tissues of the reproductive system. The final report will include an analysis of which hormones stimulate the growth of each tissue and how they regulate homeostasis of the reproductive system.	