# Brooklyn College

City University of New York

## SUST 1001

## Introduction to Urban Sustainability

Spring 2016

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Office hours: 1 – 2PM Thursdays

Note: email and Blackboard are the better ways to contact Prof. Boger

Guest Lecturers: Ken Gould, Sociology and Yehuda Klein, Economics

Meeting Times: Tuesdays and Thursdays, 2:15 – 3:55 pm, 2101 James

#### Course Description

**Bulletin Description:** Introduction to urban sustainability; ecological, economic and social analyses of the human-nature interface in urban environments; problem-based and place-based approaches; data analysis, communication, group projects and interdisciplinary skills; site visits

**Prerequisite: none**

**Rationale:** This course is one outcome of the Provost's Task on City-Based and Sustainability Education, which was charged with developing curricular initiatives to institutionalize sustainability education at Brooklyn College. The course responds to student demand for an interdisciplinary introductory course that addresses issues of sustainability that is rooted in our urban context. The term “sustainability” refers to the organization of human social and economic systems in ways that do not undermine the biophysical basis of their continued existence (ecosystems). Reflecting the "three pillars of sustainability"[[1]](#footnote-1) (environmental, social, and economic) at the root of the sustainability concept, the course is jointly proposed, sponsored, supported, and to be staffed by the departments of Earth and Environmental Sciences, Economics and Sociology. The course is a manifestation of the college's commitments to interdisciplinary education across the school structure, maximizing the utility of place in utilizing our borough as classroom, and developing curricula that address the pressing issues of the 21st century. The course uses place-based pedagogy. The course will prepare students for further, more advanced, interdisciplinary and disciplinary courses addressing issues of the complex relationships between urban systems and ecosystems.

**Course Objectives:**

1. Introduce the concept of urban sustainability
2. Provide case-based, interdisciplinary analyses of urban sustainability issues
3. Provide an introduction to the methods and character of data used by interdisciplinary scientists
4. Develop skills to work in teams and communicate natural and social science topics

**Learning Outcomes**

Students completing this course will be able to:

1. Identify situations that promote urban sustainability and urban unsustainability
2. Apply interdisciplinary approaches to address issues in urban sustainability
3. Analyze an urban sustainability problem through multiple disciplinary lenses using various forms of data (primary, secondary, qualitative, quantitative)
4. Contribute to a team to study a problem and communicate the team’s findings to the general public

#### Course Requirements[[2]](#footnote-2)

1. **Class attendance and participation:** Students are required to keep up-to-date on class readings and assignments, and to be active team members. If students miss a class, they miss whatever their team did. The team process is critical to learning, and the content of each session will be reflected on the final exam. Most teams, in real life and here, will forgive a single absence for which students have a really good reason, and be less forgiving of multiple or casual absences. **More than one absence and/or tardiness will affect the course grade (two points per absence and one point for lateness). Attendance is taken at the beginning of class and it is expected that all students will be present at the start of class.**
2. **Homework Assignments:** Students must submit a typed, double-spaced homework reflection (typically limited to two pages, unless more space is needed) based on the assigned field trips and films. They must be submitted at the beginning of each assigned class on Blackboard. If students do not submit a written reflection at the beginning of a given session, they will receive a zero for that session’s reflection. They cannot be made up.
3. **Team project/ Food Security module:** separate description will be provided
4. **Exams:** There are 4 individual quizzes and team quizzes. In addition, there will be an individual final exam. The quizzes each have 10-15 multiple-choice questions, and the final exam will have multiple choice, short answers and essays.
5. **Peer Evaluation:** Each individual will evaluate the contributions of all of the otherteam members by assigning an average of 10 points to the other team members. For example, members of a 6-member team: 1) must assign a total of 50 points to the other 5 members in their team (for a 5-member team it would be 40 points; for 7-member team it would be 60 points, etc.) and must differentiate some in their ratings; and 2) must give at least one score of 11 or higher, with a maximum of 15, and at least one score of 9 or lower. Peer evaluation scores will be the average of the points receivedand will produce differences in grades only withinteams. This means that team members cannothelp everyone in their team get an A by giving everyone high peer evaluation scores. The only way for everyone in a team to earn an A is by doing an outstanding job on the individual and team exams and projects.

**Example: Amy evaluated her team members**

**RULES**

🡪Do not evaluate yourself.

🡪Assign an average of 10 points to each of the other members of the group.

🡪There must be some differentiation.

🡪Reminder: This is not a time to be “nice” and give everyone the same grade. It is a time to be honest and identify the people who contributed the most.

**2 Calculate the Peer Evaluation Score.**

• Calculate the average score for each student.

• Multiply: the average score x the weight (or percentage) for the “team maintenance score” (=”Points toward grade”)

Sample Form:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A. | B. | | C. | D. | | E. | Average | | Points toward grade\* |
| A. Amy | | X | | | 8.2 | | | 123 | |
| B. Bob | | X | | | 9.4 | | | 141 | |
| C. Clark | | X | | | 9.8 | | | 147 | |
| D. Denise | | X | | | 10.8 | | | 162 | |
| E. Edward | | X | | | 11.8 | | | 177 | |

1. Amy --

2. Bob 8

3. Clark 10

4. Denise 10

5. Edward 12

TOTAL: 40

Average: 10 each

**Course Evaluation**

Individual Performance: 55%

Writing Assignments (4) 20%

Individual Quizzes (4) 15%

Final Exam 15%

Attendance 5%

Team Performance: 45%

Team Quizzes (5) 20%

Peer Evaluation 10%

Group Project 15%

All assignments are due on the dates indicated on the course calendar. Grades will be lowered on overdue work. *Grades on assignments will be lowered the designated number of points per week/day late, as measured by the beginning of the class period in which the assignment was due.*

*Grading Contract*: 100+ 🡪 A+ 84 – 86 🡪 B Below 72 🡪 F

94 – 100 🡪 A 80 – 83 🡪 B-

90 – 93 🡪 A- 76 – 79 🡪 C+

87—89 🡪B+ 72 – 75 🡪 C

**Policy on Late Submissions/Incompletes**

*Timely submission of work is an important professional attribute.* Work submitted late will be marked down accordingly at the discretion of the instructor.  Faculty Council has determined the following policy for Incomplete Grades:   
 *A grade of Incomplete (INC) may be given at the discretion of the instructor when 1) a student has satisfactorily completed most, but not all, course requirements, and 2) a student provides to the instructor evidence documenting the extenuating circumstances that prevent the completion of course requirements by the end of the semester.*  
*Candidates receive grades of incomplete (INC) only when a situation beyond their control prevents them from completing course work.*It is important to note that grades of INC will only be given if the instructor determines the grade is appropriate given the unusual extenuating circumstances *and such circumstances are* documented by the student.   *An incomplete grade in a course that is a prerequisite for another course must be cleared before the candidate can enter the next course.* Final assignments not submitted on the due date at the end of the semester are given a grade of zero.

**Required Readings**

*Texts*

Agyeman, J. 2005. *Sustainable Communities and the Challenge of Environmental Justice.* New York: NYU Press.

The City of New York. 2011. PlaNYC: A Greener, Greater New York.

<http://nytelecom.vo.llnwd.net/o15/agencies/planyc2030/pdf/planyc_2011_pl> anyc\_full\_report.pdf

*Articles, reports, websites:*

Bullard, Robert D. 2009. “Addressing Urban Transportation Equity in the United States.” Pp. 49-58 in *Breakthrough Commities: Sustainability and Justice in the Next American Metropolis,* edited by M. Paloma Pavel. Cambridge, Massachusetts: The MIT Press.

Cashin, Sheryll. 2009. “Race, Class, and Real Estate.” Pp. 59-66 in *Breakthrough Communities: Sustainability and Justice in the Next American Metropolis,* edited by M. Paloma Pavel. Cambridge, Massachusetts: The MIT Press.

Center for Sustainable Systems, University of Michigan. 2011. “U.S. Food System Factsheet.” Pub. No. CSS01-06. URL: <http://css.snre.umich.edu/css_doc/CSS01-06.pdf>

EPA brownfield and land revitalization: <http://www.epa.gov/brownfields/index.html>; access Anatomy of Brownfields Redevelopment at http://www.epa.gov/brownfields/overview/anat\_bf\_redev\_101106.pdf

Fitzgerald, J. 2010. Emerald Cities: Urban Sustainability and Economic Development. Oxford University Press.

Gordon, D. 2010. The role of transportation in driving climate disruption. Energy and Climate Program. Carnegie Endowment. Available at <http://carnegieendowment.org/files/transport_climate_disruption.pdf>

Gould and Lewis 2012. The environmental injustice of green gentrification: the case of Brooklyn’s Prospect Park

Gould and Lewis 2014. The paradoxes of sustainable development: focus on ecotoursim

Griggs et al 2013. Sustainable development goals for people and planet. Nature, 495: 305-307.

Heller, MC and GA Keoleian, 2003. Assessing the sustainability of the US food system: a life cycle perspective. Agricultural Systems 76:1007–1041

Hess, David J., David A. Banks, Bob Darrow, Joseph Datko, Jaime D. Ewalt, Rebecca Gresh, Matthew Hoffmann, Anthony Sarkis, and Logan D.A. Williams. 2010. “Building Clean-Energy Industries and Green Jobs: Policy Innovations at the State and Local Government Level.” Science and Technology Studies Department, Rensselaer Polytechnic Institute. [www.davidjhess.org](http://www.davidjhess.org).

McDonnell, S., Madar, J., & Been, V. (2010). Minimum Parking Requirements, Transit Proximity and Development in New York City. In Proceedings 89th annual meeting of the Transportation Research Board.

NYC Community Air Survey web site: <http://www.nyc.gov/html/doh/html/environmental/community-air-survey.shtml>; access report at <http://www.nyc.gov/html/doh/downloads/pdf/environmental/air-quality-report-2013.pdf>

Pires,M, 2004. Watershed projection for a world city: the case of New York. Land Use Policy 21: 161-175.

Quinn, C. (2010). Food Works: A Vision to Improve NYC’s Food System. New York, NY: The New York City Council.

Rosan, C. D. (2012). Can PlaNYC make New York City “greener and greater” for everyone?: sustainability planning and the promise of environmental justice. *Local Environment*, *17*(9), 959-976.

Shao, X., Corsetti, N., Martin, E., Rigel, A., & Zaheer, A. (2012). Analysis and Recommendation of Energy Efficiency Upgrades in New York City’s Upper West Side.

Zuluaga, M. and Hirschstein, C. (2012). Recognizing the Benefits of Energy Efficiency

in Multifamily Underwriting. Living Cities, http://livingcities.org

**Suggested Supplementary Readings**

ALBERTI, M., JOHN M. MARZLUFF,ERIC SHULENBERGER,GORDON BRADLEY, CLARE RYAN,AND CRAIG ZUMBRUNNEN,2003. Integrating Humans into Ecology: Opportunities and Challenges for Studying Urban Ecosystems, BioScience, Vol. 53(12): 1169-1179

Aronson et al., The road to sustainability must bridge three great divides Ann. N.Y. Acad. Sci. 1185 (2010) 225–236 c\_ 2010 New York Academy of Sciences.

Costanza, R., 2006. Creating a sustainable and desirable New Orleans. Ecological Engineering 26: 317–320.

Esty, Daniel C., Marc Levy, Tanja Srebotnjak, and Alexander de Sherbinin (2005). *2005 Environmental Sustainability Index: Benchmarking National Environmental Stewardship*. New

Haven: Yale Center for Environmental Law & Policy.

Forman, RTT and LE Alexander, 1998. Roads and their major ecological effects. Annual Review of Ecolal Systems 29:207-31.

Gould, K. and T. Lewis. “The Paradoxes of Sustainable Development” in Twenty Lessons in Environmental Sociology. Oxford University Press. 2009.

Karlenzig, Warren. 2008. “What Makes Today’s Green City?” Pp. 346-363 in *Growing Greener Cities: Urban Sustainability in the Twenty-First Century,* edited by Eugenie L. Birch and Susan M. Wachter. Philadelphia: University of Pennsylvania Press.

Lele, S and b. Norgaard, Practicing interdisciplinarity. BioScience 55:967-975.

Liu, Amy and Bruce Katz. 2009. “Katrina Is Everywhere: Lessons from the Gulf Coast.” Pp. 81-94in *Breakthrough Communities: Sustainability and Justice in the Next American Metropolis,* edited by M. Paloma Pavel. Cambridge, Massachusetts: The MIT Press.

Moldan, B and AL Dahl, 2007.Challenges to Sustainability Indicators. In: Sustainability Indicators: A Scientific Assessment, T Hák, B Moldan, and AL Dahl (eds). Island Press, Washington, pp. 1-24.

Montgomery, MR, 2008. The urban transformation of the developing world. Science 319: 761-763.

Peters et al., 2008. Mapping potential foodsheds in New York State: A spatial model for evaluating the capacity to localize food production. Renewable Agriculture and Food Systems: 24(1); 72–84

Vitiello, Domenic. 2008. “Growing Edible Cities.” Pp. 259-278 in *Growing Greener Cities: Urban Sustainability in the Twenty-First Century,* edited by Eugenie L. Birch and Susan M. Wachter. Philadelphia: University of Pennsylvania Press.

Waggoner et al. 1996. Lightening the Tread of Population on the Land: American Examples. Population and Development Review 22: 531-545

**Instructional Materials**

Instructional materials will be posted on Blackboard. Please bring these materials, including the assigned readings, to class.

# **Policy on Academic Integrity**

Academic dishonesty of any type, including cheating and plagiarism, is unacceptable at Brooklyn College. Cheating is any misrepresentation in academic work. Plagiarism is the representation of another person’s work, words, or ideas as your own. Students should consult the Brooklyn College Student Handbook for a fuller, more specific discussion of related academic integrity standards. Academic dishonesty is punishable by failure of the “…test, examination, term paper or other assignment on which cheating occurred” (Faculty Council, May 18, 1954). In addition, disciplinary proceedings in cases of academic dishonesty may result in penalties of admonition, warning, censure, disciplinary probation, restitution, suspension, expulsion, complaint to civil authorities, or ejection (Adopted by Policy Council, May 8, 1991). Download the CUNY Policy on Academic Integrity document from Blackboard, located in the “Syllabus” folder of the Course Documents link. Falsifying data on protocols, reports, and other assignments is considered cheating, and is grounds for disciplinary action which may include failure in the assignment, failure in the class and expulsion from the program.

#### Disability Statement

Students should inform the professor if they have a disability or any other situation that may require Section 504/ADA classroom accommodations. The faculty and staff will attempt to work out whatever arrangements are necessary, such as seating, tape recording, writing, testing, or other accommodations. Please see the professor **as soon as possible** to ensure accommodations are met in a timely fashion.

**Quality of Writing**

The form as well as the content of student written work will be a part of the student’s evaluation and grade. Correct grammar, punctuation, spelling and organization and clarity of thought will be assessed. Students should contact the Brooklyn College Learning Center, 951-5821, located in 1300 Boylan Hall, for assistance with writing. The instructor is also available to consult with students about their writing.

# **Classroom Decorum**

# The following rules are intended to improve the quality of the classroom and enhance learning for all. These are expectations to be adhered to in every class:

# No cell phone calls, call answering, texting in class. Students must put away their phones; they should wear a watch to know the time of day. Cell phone use (including internet use) is not allowed during application activities or any other class activity. If students are expecting an URGENT phone call (e.g., significant family crisis or illness), the phone must be on vibrate, and students must leave the class to answer the call. Phone calls must NOT be answered in the classroom. Ringers must be turned off prior to entering the classroom, or even better, the phones should be turned off. If the professor sees a student texting or using a phone, the student’s course grade will be lowered.

* 1. When using email to contact the professor, students should use a professional writing style. Students should use an appropriate salutation, valediction, and signature line – since an email address like “BettyBoop1234@hotmail.com” does not tell the professor who the student is. An email is considered professional communication, as it will be in the schools. Students should not write an email as if chatting on an instant messenger program!
  2. Students must come to class prepared by completing assigned reading, arriving on time, and engaging actively in team activities.

**Course Calendar: Schedule of Readings, Topics, and Assignments**

|  |  |  |  |
| --- | --- | --- | --- |
| **UNIT** | **TOPIC** | **INSTRUCTOR and RATs** | **READINGS, FILMS/VIDEOS AND FIELD TRIPS** |
| 1 | Introduction | T Feb 2: Boger  TH Feb. 4: Boger **SERC Assessment GLE**  T Feb 9: No class F schedule | Ageyman- Introduction  Gould & Lewis 2014  Griggs et al. 2013  PlaNYC: Natural Systems and Sustainability Indicators |
| 2 | Transportation | TH Feb 11: Boger **Quiz 1**  T Feb 16: Lopez-Pumerejo  TH Feb 18: Klein  T Feb 23: Gould | Ageyman- Ch. 1  Bullard 2009  Gordon 2010  Fitzgerald, Chapter 6  Hess, et al., 2010 (chaps. 1,2, conclusions; section on NY in chap. 4  McDonnell, et al, 2010  PlaNYC: Transportation  **Field Trip: Transportation Museum –group**  **Film: Taken for a Ride available at** https://www.youtube.com/watch?v=zy37YoQ2CJw |
| 3 | Housing | TH Feb. 25: Boger **Quiz 2**  T March 1: Klein  TH March 3: Boger  T March 8: Gould | Ageyman- Ch. 2  Cashin 2009  NYC Community Air Survey  PlaNYC: housing chapter  Shao, et al., 2012: Executive Summary, Purpose and Outline of Report, Environmental and Energy Issues, and  one chapter on detailed recommendations (from Fuel Conversion to Enhancing Energy Efficiency Adoption)  Zuluaga and Hirschtein, 2012: Executive Summary, Central Findings, Policy Recommendations  **Film: My Brooklyn** |
| 4 | Brown fields and green spaces | TH March 10: Boger **Quiz 3**  T March 15: Klein  TH March 17: Boger  T March 22: Gould | Ageyman- Ch. 3  EPA: review website and read Anatomy of Brownfields Redevelopment  Gould and Lewis 2012  Horwitch, et al., 2010  Rosan, 2012  PlaNYC: Brownfields;, Parks  **Film: A Convenient Truth: Urban Solutions from Curituba, Brazil** |
| 5 | Water | TH March 24: Boger **Quiz 4**  T March 29: Klein  TH March 31: Boger  T April 5: Gould | Ageyman- Ch. 4  CWE: Muddied waters  Pires 2004  Plan NYC Water Supply  PLaNYC Waterways  Web readings listed on Blackboard  **Field Trip: Gowanus Pod Walk** |
| 6 | Food | TH April 7: Boger  T April 12: Boger  TH April 14: Boger  T April 19: Boger  TH April 21: Boger  T May 3: Boger  TH May 5: Boger | **Meet in GIS lab 4215 Ingersoll**  Readings will be posted on Blackboard |
| 7 | Synthesis | T May 10: Gould  TH May 12: Klein  T May 17: Boger |  |
|  | **Final exam** |  |  |

**Reflections**

My Brooklyn

Transportation Museum

Gowanus Podwalk

Curituba

**APPEAL– RE-WRITE OF BAD QUESTION (TEAMS ONLY) – TEAM # \_\_\_\_\_\_**

INDIVIDUAL QUESTION # \_\_\_\_\_\_\_\_ IF-AT QUESTION/LINE #\_\_\_\_\_\_\_\_\_

**Guidelines for preparing successful appeals:**

Appeals are granted when they demonstrate that you understood the concept(s) but missed the question anyway or that your confusion was due to inadequacies in either the question or the reading material.

**For appeals based on AMBUGUITY OF THE QUESTION, you should:**

1. Identify the source of ambiguity in the question and,

2. Offer an alternative wording that would have helped you to avoid the problem.

**In the space below, re-write the question so that it is a better one:**

**APPEAL– BASED ON CONTENT ISSUES (TEAMS ONLY) – TEAM # \_\_\_\_\_\_**

INDIVIDUAL QUESTION # \_\_\_\_\_\_\_\_ IF-AT QUESTION #\_\_\_\_\_\_\_\_\_

PROPOSED CORRECT ANSWER \_\_\_\_\_\_\_

**Guidelines for preparing successful appeals:**

Appeals are granted when they demonstrate that you understood the concept(s) but missed the question anyway or that your confusion was due to inadequacies in either the question or the reading material.

**For appeals based on CONTENT, you should:**

1. State the reason(s) for disagreeing with our answer and,

2. Provide specific references from the reading material to support your point of view.

**In the space below, explain, with references from the readings if possible, why you feel your selected response was the BEST one.**

**Team-Based Learning**

**Midterm Peer Feedback**

**Not Graded**

Team:

Colleague you are evaluating:  **\_\_\_\_\_\_\_\_\_\_**

Your name (evaluator): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part One: Quantitative Assessment *(***check ***ONLY one Box*** for each of these 12 ITEMS)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cooperative Learning Skills:** | **Never** | **Sometimes** | **Often** | **Always** |
| Arrives on time and remains with team during activities |  |  |  |  |
| Demonstrates a good balance of active listening & participation |  |  |  |  |
| Asks useful or probing questions |  |  |  |  |
| Shares information and personal understanding |  |  |  |  |
|  |  |  |  |  |
| **Self-Directed Learning:** | **Never** | **Sometimes** | **Often** | **Always** |
| Is well prepared for team activities |  |  |  |  |
| Shows appropriate depth of knowledge |  |  |  |  |
| Identifies limits of personal knowledge |  |  |  |  |
| Is clear when explaining things to others |  |  |  |  |
|  |  |  |  |  |
| **Interpersonal Skills:** | **Never** | **Sometimes** | **Often** | **Always** |
| Gives useful feedback to others |  |  |  |  |
| Accepts useful feedback from others |  |  |  |  |
| Is able to listen and understand what others are saying |  |  |  |  |
| Shows respect for the opinions and feelings of others |  |  |  |  |

**Part TWO: Qualitative Assessment** (*for each item,* write ***at least one*** sentence, but ***not more than three*** sentences)

|  |
| --- |
| **1) What is the single most valuable contribution this person makes to your team?** |
| **2) What is the single most important way this person could alter his/her behavior to more effectively help your team?** |

**Final Peer Evaluation**

**Name**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Team #** \_\_\_\_\_\_

Please assign scores that reflect how you really feel about the extent to which the other members of your team contributed to your learning and/or your team’s performance. This will be your only opportunity to reward the members of your team who worked hard on your behalf. (**Note: If you give everyone pretty much the same score you will be hurting those who did the most and helping those who did the least.)**

**Instructions:** In the space below please rate each of the **other** members of your team. Each member's peer evaluation score will be the average of the points they receive from the other members of the team. To complete the evaluation you should: 1) List the name of each member of your team in the alphabetical order of their last names and, 2) assign an average of ten points to the other members of your team (Thus, for example, you should assign a total of 50 points in a six-member team; 60 points in a seven-member team; etc.) and, 3) differentiate some in your ratings; for example, you must give at least one score of 11 or higher (maximum = 15) and one score of 9 or lower.

|  |  |
| --- | --- |
| **Team Members: Scores:** | **Team Members: Scores:** |
| **1)** | **5)** |
| **2)** | **6)** |
| **3)** | **7)** |
| **4)** | **8)** |

**Additional Feedback:** In the space below, briefly describe your reasons for your highest and lowest ratings. These comments – but not information about who provided them – will be used to provide feedback to students who would like to receive it.

**Reason(s) for your highest rating(s). (Use back if necessary.)**

**Reason(s) for your lowest rating(s). (Use back if necessary.)**

**Reflection/Essay Rubric**

Grades will be based on your team presentation and summary (1 grade) and an assessment of individual contributions to the team. Your presentations and executive summary will be graded using the following rubric:

• Does the presentation focus on a specific issue/topic/problem?

• Does the presentation address how each pillar of sustainability relates to the issue/topic/problem?

• Does the presentation address how the three pillars are interrelated in the issue/topic/problem?

• Does the presentation address use ideas and concepts from the course course readings in the analysis (with citation)?

• Does the presentation highlight the tensions and trade-offs among the three pillars in efforts to mitigate the issue/topic/problem?

1. See WECD 1987, Barbier 1987, Fien 2002, Figge et al 2002, Pope et al 2004, Adams 2006. [↑](#footnote-ref-1)
2. Some of the course instructional materials and format are adapted from Team Based Learning. (Information about TBL adapted from *Three Keys to Using Learning Groups Effectively* by Larry Michaelsen; *Student Orientation Materials* by Dean Parmelee; and *The Essential Elements of Team-Based Learning* by Michaelsen & Sweet.) [↑](#footnote-ref-2)