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## Term Information

Effective Term Spring 2015

## General Information

Course Bulletin Listing/Subject Area Geography  
Fiscal Unit/Academic Org Geography - D0733  
College/Academic Group Arts and Sciences  
Level/Career Graduate, Undergraduate  
Course Number/Catalog 5301  
Course Title Sustainable Transportation  
Transcript Abbreviation Sustain Transport  
Course Description Sustainable transportation generate accessibility while minimizing harm to people and the natural environment. This course examine the problems associated with transportation, including climate change, air quality, non-renewable resources, safety, congestion and social equity. We will also examine solutions to these problems, including pricing, planning, policy and technology.  
Semester Credit Hours/Units Fixed: 3

## Offering Information

Length Of Course 14 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? No  
Grading Basis Letter Grade  
Repeatable No  
Course Components Lecture  
Grade Roster Component Lecture  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus

## Prerequisites and Exclusions

Prerequisites/Corequisites  
Exclusions

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 45.0701  
Subsidy Level Masters Course  
Intended Rank Junior, Senior, Masters

## Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

## Course Details

### Course goals or learning objectives/outcomes

- Understand concepts surrounding sustainability and their application to the problem of mobility
- Understand the technological and social processes that have created the mobility revolution
- Understand the scientific basis for non-sustainable transportation and the implications for the environment, society and personal well-being
- Engage in informed discussions about policy, planning, technological and educational prescriptions that improve transportation sustainability

### Content Topic List

- Transportation
- Environment
- Sustainability

## Attachments

- GEOGR 5301 sustainable transportation syllabus v2.pdf  
*(Syllabus. Owner: Carducci, Diane G)*
- G5301-Curriculum-map-Semesters - harv edit 11 Feb 2014.xlsx  
*(Other Supporting Documentation. Owner: Carducci, Diane G)*

## Comments

## Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Carducci, Diane G	02/27/2014 11:05 AM	Submitted for Approval
Approved	Sui, Dianzhi	02/27/2014 11:05 AM	Unit Approval
Approved	Haddad, Deborah Moore	02/27/2014 11:43 AM	College Approval
Pending Approval	Vankeerbergen, Bernadette Chantal Nolen, Dawn Jenkins, Mary Ellen Bigler Hogle, Danielle Nicole Hanlin, Deborah Kay	02/27/2014 11:43 AM	ASCCAO Approval

## **GEOGR 5301 Sustainable Transportation**

<b>Instructor</b>	Harvey J. Miller
<b>Lecture meeting times and location</b>	TBD
<b>Office hours and location</b>	TBD 1176 Derby Hall
<b>Email</b>	miller.81@osu.edu (best contact method)
<b>Phone</b>	614-292-5207

### **Texts**

1. Black, W. R. (2010) Sustainable Transportation: Problems and Solutions. New York: Guilford. ISBN 978-1-60623-485-3
2. Sperling, D. and Gordon, D. (2009) Two Billion Cars: Driving Towards Sustainability. New York: Oxford University Press. ISBN 978-0-19-537664-7.
3. Other readings and websites posted at Carmen

### **Course description**

The explosion in mobility over the past two centuries is one of the most profound changes in the history of human civilization. While mobility has benefits, it comes with environmental, social and economic costs. A prime challenge facing humanity over the next few decades is address the environmental cost of transportation while maintaining – and even increasing – mobility and access to opportunities. This course examines the problem of developing sustainable transportation systems. We will examine the environmental and human problems associated with transportation, including climate change, air quality, consumption of non-renewable resources, safety, congestion and social equity. We will also examine possible solutions to these problems, including pricing, planning, policy, technology and education.

### **Learning outcomes**

After successful completion of this course, students will:

1. Understand concepts surrounding sustainability and their application to the problem of mobility
2. Understand the technological and social processes that have created the mobility revolution
3. Understand the scientific basis for non-sustainable transportation and the implications for the environment, society and personal well-being.
4. Engage in informed discussions about policy, planning, technological and educational prescriptions that improve transportation sustainability.

### **Evaluation**

**Assignments (25%):** There will be a series of short assignments involving investigations into sustainability science, transportation issues at the local, national and international scales and working with transportation and related tools and data. These will be announced in class and at the Carmen site.

**Examinations (25%):** There will be 3-4 short examinations during the semester, including a (non-comprehensive) final examination.

**Term project (25%):** The term project should be a critical review and analysis of a transportation sustainability problem and possible solutions. It should reflect an understanding of the issues raised during the course and the application of these issues to a specific, real-world problem. Suggestions include:

1. Identify a transportation mode and a meaningful scale/study area, and discuss a sustainability issues associated with mode, future trends and possible solutions. Examples include the climate change impacts associated global airline travel, urban traffic congestion in US or Chinese cities, or fossil fuel consumption and trends in vehicle-miles traveled at the global scale.
2. Identify a proposed transportation project in a particular study area (e.g., a new highway, a new airport) discuss the sustainability issues involved and possible solutions.
3. Choose a city, region or country and examine the transportation, development and environmental history of that city.

Students can also propose other topics, subject to the instructor's approval.

Papers will be evaluated using professional standards: they should reflect original thought, be well-written and organized, and must be referenced following scientific standards.

I am also open to proposals about alternative projects instead of a "traditional" term paper. However, these projects must have sufficient quality and reflect an effort commensurate with a term paper.

Papers must be submitted using the Turnitin plagiarism detection software. Details will be available at Carmen.

**Class participation (25%):** There will be a set of in-class group exercises and discussions. These will not be announced ahead of time, so it is in your best interest to attend class regularly.

### **Policies**

**Academic misconduct.** It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct [http://studentlife.osu.edu/pdfs/csc\\_12-31-07.pdf](http://studentlife.osu.edu/pdfs/csc_12-31-07.pdf)

**Penalties for late assignments.** Without prior approval by the instructor, late assignments will be penalized by 10% per day (including weekends/holiday) and will no longer be accepted after three days

**Missed examinations.** Students must contact the instructor and obtain approval prior to a scheduled examination if illness, emergencies or other circumstances prevent participating in an examination at the scheduled time.

**Individual extra credit.** Individual “extra credit” assignments or activities will not be available under any circumstances.

**Disability services.** Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>

**Carmen**

This course will make use of the Carmen online learning system. I will be posting slides from my lectures, readings, assignments, announcements and interesting websites and articles. Students are responsible for all material and announcements posted at Carmen.

**Course Schedule**

<b>Date (m/d)</b>	<b>Topic</b>	<b>Reading</b>
TBD	Syllabus/Course overview	
	Sustainability and sustainable transport	Black: Chapter 1. Sperling/Gordon: Chapter 1. Bannister (2008); TRB (2009)
	Space-time convergence, fragmentation and the mobility revolution	Shafer and Victor (1997)
	Historical perspectives on sustainable Transportation	Black – Chapter 2. Gibbs (1997). Sperling/Gordon: Chapter 2.
	<b>Exam 1</b>	
	Climate change	Black: Chapter 3
	Air quality	Black: Chapter 4
	Non-renewable resources	Black: Chapter 5
	Safety	Black: Chapter 6
	Congestion	Black: Chapter 7
	Social sustainability	Boschmann and Kwan (2008). Steg and Gifford (2005). Miller (2007)
	<b>Exam 2</b>	

	Pricing	Black: Chapter 9 + Chapter 10
	Planning and public transit	Black: Chapter 11 + Chapter 12 TBD
	Policy and information	Black: Chapter 13 - 18 Sperling/Gordon: Chapter 3
	Alternative fuels and vehicles (including bicycles)	Black – Chapter 19 -20. Sperling/Gordon: Chapters 4 - 6
	Intelligent and cooperative transportation	Black – Chapter 21; Miller (2013)
	Summary and prospects	Black – Chapter 22. Sperling/Gordon: Chapters 7-9
	<b>Exam 3</b>	

### Other readings

- Bannister, D. (2008) “The sustainable mobility paradigm,” *Transport Policy*, 15, 73-80.
- Boschmann, E. E. and Kwan, M.-P. (2008) “Towards socially sustainable urban transportation: Progress and Potentials,” *International Journal of Sustainable Transportation*, 2, 138-157.
- Gibbs, W.W. (1997) “Transportation’s perennial problems,” *Scientific American*, (October 1997), 54-57
- Miller, H. J. (2007) “Social exclusion in space and time,” in K.W. Axhausen (ed.) *Moving through Nets: The Social and Physical Aspects of Travel*, Elsevier, 353-380.
- Miller, H. J. (2013) “Beyond sharing: Cultivating cooperative transportation systems through geographic information science,” manuscript.
- Miller, H.J., Witlox, F. and Tribby, C. (2013) “Developing context-sensitive livability indicators for transportation planning: A measurement framework,” *Journal of Transport Geography*, 26, 51-64.
- Schafer, A. and Victor, D. (1997) “The past and future of global mobility,” *Scientific American*, (October 1997), 58-61.
- Steg, L. and Gifford, R. (2005) “Sustainable transportation and quality of life,” *Journal of Transport Geography*, 13, 59-69.
- TRB (2009) *Critical Issues in Transportation 2009*, Washington, DC: US National Academies