1. ACADEMIC UNIT: School of Letters & Sciences - Science, Technology and Society

2. COURSE PROPOSED: STS 235 Technology and Urban Systems 3.0
   (prefix) (number) (title) (semester hours)

3. CONTACT PERSON: Name: Irene Rodriguez Phone: 727 345
   Mail Code: 0180 E-Mail: irene@asu.edu

4. ELIGIBILITY: New courses must be approved by the Tempe Campus Curriculum Subcommittee and must have a regular course number. For the rules governing approval of omnibus courses, contact the General Studies Program Office at 965-0739.

5. AREA(S) PROPOSED COURSE WILL SERVE. A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirement and the major program of study. (Please submit one designation per proposal)

   Core Areas
   - Literacy and Critical Inquiry–L
   - Mathematical Studies–MA
   - CS
   - Humanities, Fine Arts and Design–HU
   - Social and Behavioral Sciences–SB
   - Natural Sciences–SQ
   - SG

   Awareness Areas
   - Global Awareness–G
   - Historical Awareness–H
   - Cultural Diversity in the United States–C

6. DOCUMENTATION REQUIRED.
   (1) Course Description
   (2) Course Syllabus
   (3) Criteria Checklist for the area
   (4) Table of Contents from the textbook used, if available

7. In the space provided below (or on a separate sheet), please also provide a description of how the course meets the specific criteria in the area for which the course is being proposed.

   CROSS-LISTED COURSES: ☑ No ☐ Yes; Please identify courses: ______________________

   Is this an multisection course?: ☑ No ☐ Yes; Is it governed by a common syllabus? ________

Nicholas Alozie
Chair/Director (Print or Type)
Date: 4/13/2011

Chair/Director (Signature)

Rev. 1/94, 4/95, 7/98, 4/00, 1/02, 10/08
### ASU--[SB] CRITERIA

A SOCIAL AND BEHAVIORAL SCIENCE [SB] course should meet all of the following criteria. If not, a rationale for exclusion should be provided.

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>Criteria</th>
<th>Identify Documentation Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1. Course is designed to advance basic understanding and knowledge about human interaction.</td>
<td>STS 235 Syllabus Table of contents from major text.</td>
</tr>
<tr>
<td>✔️</td>
<td></td>
<td>2. Course content emphasizes the study of social behavior such as that found in:</td>
<td>STS 235 Syllabus Table of contents from major text.</td>
</tr>
<tr>
<td></td>
<td>✔️</td>
<td>• ANTHROPOLOGY • ECONOMICS • CULTURAL GEOGRAPHY • HISTORY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✔️</td>
<td>3. Course emphasizes: a. the distinct knowledge base of the social and behavioral sciences (e.g., sociological anthropological). <strong>OR</strong> b. the distinct methods of inquiry of the social and behavioral sciences (e.g., ethnography, historical analysis).</td>
<td>STS 235 Syllabus Table of contents from major text.</td>
</tr>
<tr>
<td></td>
<td>✔️</td>
<td>4. Course illustrates use of social and behavioral science perspectives and data.</td>
<td>STS 235 Syllabus Table of contents from major text.</td>
</tr>
</tbody>
</table>

THE FOLLOWING TYPES OF COURSES ARE EXCLUDED FROM THE [SB] AREA EVEN THOUGH THEY MIGHT GIVE SOME CONSIDERATION TO SOCIAL AND BEHAVIORAL SCIENCE CONCERNS:

- Courses with primarily fine arts, humanities, literary, or philosophical content.
- Courses with primarily natural or physical science content.
- Courses with predominantly applied orientation for professional skills or training purposes.
- Courses emphasizing primarily oral, quantitative, or written skills.
### Course Prefix | Number | Title | Designation
---|---|---|---
STS | 235 | Technology and Urban Systems | SB

Explain in detail which student activities correspond to the specific designation criteria. Please use the following organizer to explain how the criteria are being met.

<table>
<thead>
<tr>
<th>Criteria (from checksheet)</th>
<th>How course meets spirit (contextualize specific examples in next column)</th>
<th>Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>This course focuses on the relationships between technology and urbanization, especially on how technological change impacts all aspects of urban systems. Much of the world's population resides in urban areas therefore, the interaction of technology and urbanization is a very important aspect of contemporary social science.</td>
<td>Both the course learning outcomes and assigned readings show very clearly discussions about science and technology and urban systems technologies such as: transportation technology, construction technology, water resource/sewage technology, and telecommunications.</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Study components and relationships between technology and urbanization. How technological change impacts all aspects of urban systems that includes: urban social and economic development, governance, sustainable development, environmental issues and community transformation.</td>
<td>This is an interdisciplinary course that utilizes literature from the social sciences at large, as indicated in the course outline.</td>
</tr>
<tr>
<td>3</td>
<td>-A- Course emphasizes sociological and anthropological methodologies. This is clear on the syllabus from weeks 1-15 in areas that speak to learning outcomes and individual topics.</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table of contents from major text also attached.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeks 1-15 noted in syllabus.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Arizona State University Criteria Checklist for

SOCIAL AND BEHAVIORAL SCIENCES [SB]

Rationale and Objectives

The importance of the social and behavioral sciences is evident in both the increasing number of scientific inquiries into human behavior and the amount of attention paid to those inquiries. In both private and public sectors people rely on social scientific findings to assess the social consequences of large-scale economic, technological, scientific, and cultural changes.

Social scientists' observations about human behavior and their unique perspectives on human events make an important contribution to civic dialogue. Today, those insights are particularly crucial due to the growing economic and political interdependence among nations.

Courses proposed for General Studies designation in the Social and Behavioral Sciences area must demonstrate emphases on: (1) social scientific theories and principles, (2) the methods used to acquire knowledge about cultural or social events and processes, and (3) the impact of social scientific understanding on the world.
### Course Catalog

**Effective Date:** 01/01/2017  
**Status:** Active  
**Course Offering:**  

<table>
<thead>
<tr>
<th>Course ID:</th>
<th>123150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Technology and Urban Systems</td>
</tr>
<tr>
<td>Long Course Title:</td>
<td>Technology and Urban Systems</td>
</tr>
<tr>
<td>Long Description:</td>
<td>Focuses on the relationship between technology and urbanization, especially on how technological innovation and change impact all aspects of urban systems, including urban social and economic development, sustainability, governance, environmental, and community change.</td>
</tr>
</tbody>
</table>

| Approved/Default Min Units: | 3.00  
| Approved/Default Max Units: | 3.00  

| Enrollment Unit Load & Unit Type: |  
| Actual Units: | 2.00  

| Academic Progress Units: | 3.00  
| Financial Aid Progress Units: | 3.00  

| Course Count: | 1.00  
| Course Contact Hours: | 0.00  

| Course Offering: |  
| Grade Basis: | Resident  
| Grade Component: | Lecture  

| Repeat for Credit: |  
| Total Units Allowed: | 3.00  
| Total Completions Allowed: | 1  

| Additional Course Information: |  
| Instructor Edit: | No  
| Consent: | No  

| Requirement Designation: |  
| Equivalent Course Group: |  

| Course Attributes: |  
| Grade: |  
| Credit/Noncredit: |  

| Course Topics: |  
| Description: |  
| Repeat for Credit: |  

| Override Topic Link ID: |  
| Course Topic Description: |  
| Credit: |  

---

**Course Catalog**

Arizona State University at the Polytechnic Campus
School of Applied Arts and Sciences
Social and Behavioral Sciences

STS 235: Technology and Urban Systems

Fall 2010
Schedule Line Number:

Venue: 
Time: 
Days: 
Meeting Dates: 
Class Format: Lecture/Discussion

Instructor: Cynthia Hawkinson
Office: Santa Catalina (SANCA) 252
Email: cynthia.hawkinson@asu.edu
Office Hours: Monday & Tuesday
or by appointment.

Course Description:

A good portion of the world’s population now lives in cities and towns. Urban life brings us excitement and sophistication, but also brings us a wide variety of challenges and conflicts. The influence of cities and towns extends far beyond their urban boundaries into rural life. Globally, cities are connected socially, economically, and politically via instantaneous telecommunications. And yet, each city is different. It has its own unique culture and flare. In America, we know that Phoenix is not the same as Miami or New York City or Seattle!

This course focuses on the relationships between technology and urbanization, especially on how technological change impacts all aspects of urban systems. This impact includes: urban social and economic development, governance, sustainable development, environmental issues and community transformation. The urban systems technology that we will most closely study includes: transportation technology, construction technology, water resource/sewage technology, and telecommunications.

Pre-requisites: None required.

Course Learning Outcomes:

Students are expected to:
- gain understanding of urban geography definitions and concepts,
- gain understanding of the development and transformation of urban centers,
- gain insight into the importance of urban transportation technology over the past 200 years,
• gain insight into the intricacies of urban land use and the complexities of urban construction technology,
• gain understanding of urban water issues and technology, including: water resources, water drainage and storm sewers, water pollution, and sewage treatment,
• gain insight into urban governance issues and technology, including: city services, city utilities, land use planning, social events/activities, and economic development (blight versus renewal),
• gain understanding of the connection between telecommunications and sustainable development,
• gain understanding of the multitude of environmental issues found in an urban center, and
• gain insight into urban centers of the future.

Core Curriculum:

The course material is divided into 7 Blocks:

Block 1: Introduction to Urban Geography (Chapter 1)
Block 2: History of Urbanization and Transportation Technology (Chapters 2 & 3)
Block 3: Urban Structures and Technology (Chapters 4)
Block 4: Urban Water Resources and Technology (Chapters 5)
Block 5: Urban Governance and Technology (Chapters 6)
Block 6: Urbanization and Telecommunications (Chapters 8)
Block 7: Environmental Issues and the Future of Urban Centers
(Chapter 7 & student research)

The course textbooks will be supplemented with assigned readings from additional sources to facilitate up-to-date classroom discussions. Students will be responsible for these readings. The course work will culminate in a classroom presentation by each student. Students will select a presentation topic related to the technology of future urban centers. Students need to invest significant time into this presentation!

Required Textbooks:

Paperback ISBN: 978-0-415-20084-4 (also available in hardback)

Paperback ISBN: 978-0-415-20086-8 (also available in hardback)
Graded Work:

3 Block Exams (Each 50 point exam will have 25 multiple choice questions, which will be limited to each Block’s material.) 150
Student Presentation 50
Final Exam (This will be a cumulative exam; potentially covering any and all course material.) 100
TOTAL POSSIBLE POINTS: 300

Grading Scale: (No grading curve.)

<table>
<thead>
<tr>
<th>Course Grade</th>
<th>% of Points</th>
<th>Total Points</th>
<th>ASU GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>98-100</td>
<td>294-300</td>
<td>4.33</td>
</tr>
<tr>
<td>A</td>
<td>94-97</td>
<td>282-293</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>91-93</td>
<td>273-281</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>88-90</td>
<td>264-272</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>84-87</td>
<td>252-263</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>81-83</td>
<td>243-251</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>78-80</td>
<td>234-242</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>71-77</td>
<td>213-233</td>
<td>2.0</td>
</tr>
<tr>
<td>D</td>
<td>61-70</td>
<td>183-212</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>0-60</td>
<td>0-182</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Course Policies:

Attendance—Each student is expected to be in class every day to participate in classroom discussions and classroom learning. Students will be responsible for all classroom material. Missing class will likely have a significantly negative effect on your grade!

Computers --Each student is required to activate their ASU e-mail account and check it regularly. The instructor will not communicate through any other e-mail provider.

Late Work—Assignments turned in late will receive an automatic 20% reduction in grade. At one week past the assignment due date, the assignment will not be accepted and the student will receive zero points for that assignment.

Make-Up Exams—Make-up exams will receive an automatic 20% reduction in grade, and must be scheduled at the instructor’s convenience. At three weeks past the original exam date, the exam cannot be made up and the student will receive zero points for the exam.

Extra Credit—Extra credit work is NOT available.
Incomplete Grades—A course grade of "incomplete" will be given only in extreme situations. If necessary, please discuss this issue with the instructor. The Incomplete Grade Request form can be found at: http://www.asu.registrar/forms/regforms.html.

Creature Comforts during class—
  Restroom: Go when you need to, but do it quietly!
  Food: Food is not allowed in the classroom.
  Drinks: Drinks are allowed as long as the container has a closeable top/lid.
  Smoking: Smoking is never allowed in ASU classrooms!
  Quiet: Please leave children and noisy electronics at home.

Student Conduct—ASU Policy states that each student must act with honesty and integrity, and must respect the rights of others in carrying out all academic assignments. The entire policy can be found at: http://www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm. The instructor will strictly enforce these policies.

Student Services—A wide variety of services are available to students, including: The Writing Center, ASU Libraries, Counseling, Student Success Center, Career Services, Financial Aid, and Student Health. Detailed information can be found at:
http://www.poly.asu.edu/students/services/.

Americans with Disabilities Act: The ADA is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. One element of this legislation requires that all qualified students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring accommodation, please contact the Disability Resource Center at ASU Polytechnic located in Student Affairs Quad 4 or call 480-727-1039. Eligibility and documentation policies can be found at:

Privacy Rights: The federal Family Educational Rights and Privacy Act (also known as FERPA) affords students certain rights with respect to their education records. ASU policy precludes the instructor from communicating with second parties without certain requirements first being met. The entire policy can be found at: http://students.asu.edu/policies/ferpa.

Syllabus—Students agree to accept and comply with these requirements by choosing to remain enrolled in this course. The instructor reserves the right to modify the contents of this syllabus. Any changes will be announced in class and will include written instructions. Students are responsible for being aware of any such changes.
Course Schedule:

Block 1: Introduction to Urban Geography

WEEK ONE: Syllabus & Introduction to Concepts of Urban Geography
Read Introduction of the textbook.

WEEK TWO: Development and Transformation of Urban Centers
Read Chapter 1 of the Textbook and Reader.

Block 2: History of Urbanization and Transportation Technology

WEEK THREE: 19th Century Urban Centers and Transportation
Read Chapter 2 of the Textbook and Reader.

WEEK FOUR: 20th Century Urban Centers and Transportation
Read Chapter 3 of the Textbook and Reader.

EXAM 1 will cover all material from Block 1 and 2 (Weeks 1, 2, 3 and 4) including classroom lectures, classroom discussions, and textbook readings.

Block 3: Urban Structures and Technology

WEEK FIVE: Urban Building Types and Uses
Read Chapter 4 of the Textbook and Reader.

WEEK SIX: Urban Construction Technology
Read Chapter 4 of the Textbook and Reader.

Block 4: Urban Water Resources and Technology

WEEK SEVEN: Water Resources
Read Chapter 5 of the Textbook and Reader.

WEEK EIGHT: Water Drainage and Storm Sewers
Read Chapter 5 of the Textbook and Reader.

WEEK NINE: Water Pollution and Sewage Treatment
Read Chapter 5 of the Textbook and Reader.

EXAM 2 will cover all material from Blocks 3 and 4 (Weeks 5, 6, 7, 8 and 9) including classroom lectures, classroom discussions, and textbook readings.
Block 5: Urban Governance and Technology

WEEK TEN: Urban Land Use Planning and Economic Development
Read Chapter 6 of the Textbook and Reader.

WEEK ELEVEN: City Services and the Urban Culture
Read Chapter 6 of the Textbook and Reader.

Block 6: Urbanization and Telecommunications

WEEK TWELVE: History of Urbanization and Telecommunications
Read Chapter 8 of the Textbook and Reader.

WEEK THIRTEEN: Sustainable Development and Telecommunications
Read Chapter 8 of the textbook.

EXAM 3 will cover all material from Block 5 and 6 (Weeks 10, 11, 12 and 13) including classroom lectures, classroom discussions, and textbook readings.

Block 7: Environmental Issues and the Future of Urban Centers

WEEK FOURTEEN: 21st Century Urban Centers: Bright and Blight
Read Chapter 7 of the Textbook and Reader.

WEEK FIFTEEN: Future Urban Centers

STUDENT PRESENTATIONS (Additional written instruction for this assignment will be provided at the beginning of Block 3.)

Finals Week: Classroom Preparation for the Final Exam

Cumulative FINAL EXAM
Required Textbooks:

Paperback ISBN: 978-0-415-20084-4 (also available in hardback)

Paperback ISBN: 978-0-415-20086-8 (also available in hardback)
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>vi</td>
</tr>
<tr>
<td>The Cities and Technology series</td>
<td>viii</td>
</tr>
<tr>
<td>Definitions</td>
<td>viii</td>
</tr>
<tr>
<td>American cities and technology</td>
<td>ix</td>
</tr>
<tr>
<td>Conventions and acknowledgements</td>
<td>x</td>
</tr>
<tr>
<td>References</td>
<td>xi</td>
</tr>
<tr>
<td>Conversion table: imperial/metric units</td>
<td>xii</td>
</tr>
<tr>
<td>Abbreviations of US states</td>
<td>xii</td>
</tr>
</tbody>
</table>

## 1 The growth of cities

**BY GERRYLYNN K. ROBERTS**

1.1 The pattern of urbanization                                          | 1    |
1.2 Periodization of city development?                                   | 7    |
1.3 Characteristics of US cities                                        | 9    |
1.4 Industrialization and urbanization                                  | 10   |
1.5 Technology and the development of cities                            | 11   |
References                                                              | 12   |

## 2 Transport and the nineteenth-century city

**BY GERRYLYNN K. ROBERTS**

2.1 The role of government                                              | 14   |
2.2 Intercity transport                                                 | 15   |
2.3 Intracity transport                                                 | 16   |
2.4 Mass transport and the late nineteenth-century city                 | 41   |
Extracts                                                                | 43   |
References                                                              | 51   |

## 3 Transport in the twentieth-century city – automobility

**BY GERRYLYNN K. ROBERTS**

3.1 Introduction                                                        | 53   |
3.2 The emergence of the motor car                                      | 54   |
3.3 Good roads                                                          | 58   |
3.4 Urban car ownership                                                 | 60   |
3.5 Accommodating the motor car in the city                            | 61   |
3.6 The motor car and suburbanization                                  | 73   |
3.7 The motor car and public transport                                 | 75   |
3.8 The lorry                                                           | 80   |
3.9 Automobility                                                        | 82   |
Extracts                                                                | 83   |
References                                                              | 90   |

## 4 Building types and construction

**BY GERRYLYNN K. ROBERTS**

4.1 Housing                                                             | 93   |
4.2 The skyscraper                                                      | 104  |
4.3 Electricity and buildings                                           | 110  |
4.4 Buildings and the motor car                                         | 125  |
4.5 Buildings of tomorrow – or yesterday?                               | 131  |
Extracts                                                                | 132  |
References                                                              | 138  |
The American Cities & Technology Reader

WILDERNESS TO WIRED CITY

EDITED BY GERRYLYNN K. ROBERTS
CONTENTS

List of figures and tables vii

Introduction 1

1 The Indian Legacy in the American Landscape 3
   Karl W. Butzer
2 Spanish Legacy in the Borderlands 17
   David Hornbeck
3 The Laws of the Indies 25
   John W. Reps
4 St. Augustine, Florida 28
   John W. Reps
5 Mission, Presidio and Pueblo in California 32
   John W. Reps
6 French Landscapes in North America 38
   Cole Harris
7 New Orleans 44
   John W. Reps
8 The Northeast and the Making of American Geographical Habits 49
   Peirce P. Lewis
9 Timber Framing in Colonial America 62
   Carl W. Condit
10 Masonry Construction in Colonial America 71
   Carl W. Condit
11 Chicago: Nature's Metropolis 75
   William Cronon
12 Comparative Perspectives on Transit in Europe and the United States, 1850–1914 88
   John P. McKay
13 The Trolley and Suburbanization 98
   Kenneth T. Jackson
14 The Revolution in Street Pavements, 1880–1924 107
   Clay McShane
15 The Decentralization of Los Angeles during the 1920s
   Mark S. Foster
   117
16 The Minimum House
   Greg Hise
   126
17 Light, Height, and Site: the skyscraper in Chicago
   Carol Willis
   139
18 Decisions about Wastewater Technology, 1850-1932
   Joel Tarr
   154
19 Refuse Pollution and Municipal Reform: the waste problem in America, 1880-1917
   Martin Melosi
   163
20 "The Best Lighted City in the World": the construction of a nocturnal landscape in Chicago
   Mark J. Bownan
   173
21 Regional Planning for the Great American Metropolis: New York between the World Wars
   David A. Johnson
   188
22 Transport: maker and breaker of cities
   Colin Clark
   196
23 Order in Diversity: community without propinquity
   Melvin W. Webber
   201
24 Squaring the Circle: can we resolve the Clarkian paradox?
   Peter Hall
   211
25 New Highways
   James Martin
   225
26 Telecommunications and the Changing Geographies of Knowledge Transmission in the Late Twentieth Century
   Barney Warf
   230
27 Cities and their Airports: policy formation, 1926-1952
   Paul Barrett
   247
28 The Growth of the City
   Ernest W. Burgess
   259
29 Boston's Highway 128: high-technology reindustrialization
   Manuel Castells and Peter Hall
   264
30 The Role of Information Technology in the Planning and Development of Singapore
   Kenneth E. Conte
   272
31 Continuity and Change in Conceptions of the Wired City
   William H. Dutton, Jay G. Blundel and Kenneth L. Kraemer
   280

Acknowledgements

Index

   289

   291