

October 29, 2008

TO: The General Studies Council  
FROM: Nicholas Alozie *NA*  
Head, Social and Behavioral Sciences  
RE: STS Courses Submitted for General Studies Review

Earlier this year the ABOR approved the B.S. degree program in Science, Technology, and Society for the Polytechnic campus (see attached memorandum from Provost Capaldi). Science, Technology, and Society (STS) is a social science discipline that investigates the interrelationship of science/technology and human systems. Typically, issues concerning the impact of science/technology on globalization, reproductive technology and human values, information technology and human relations, and science/technology and public policy and governance all come under the general domain of studies in STS. All of the STS courses included in this review are *required* to support this new degree program. These courses have all gone through the ACRES process and have received final approval (see attached front sheet from ACRES).



ARIZONA STATE UNIVERSITY

March 28, 2008

TO: David Schwalm, Dean  
School of Applied Arts and Sciences

FROM: Elizabeth D. Capaldi  
Executive Vice President and Provost of the University

SUBJECT: B.S. in Science, Technology, and Society

This is to notify you that on March 25, 2008, the Academic Affairs Committee of the Board of Regents approved the request for authorization to implement the B.S. in Science, Technology, and Society.

You may proceed to implement the proposal effective immediately. The following plan code has been established in OASIS, effective fall 2008: ECSTSBS

XC: Maria Allison  
Bridgot Allcott  
Jill Andrews  
Nancy Dickson  
Melinda Gebel  
Jennifer Glawson  
Heather Hoffart  
Cecilia Hook  
Glenn Irvin  
Nancy Kiernan  
Phyllis Lucie  
Linda Pedersen  
Julie Ramsden  
Adrian Sannier  
Gini Sater  
David Young  
Nicholas Alozie  
Lisa Frank

EXECUTIVE VICE PRESIDENT AND PROVOST OF THE UNIVERSITY

FULTON CENTER, SUITE 420  
300 EAST UNIVERSITY DRIVE  
PO BOX 877805, TEMPE, AZ 85287-7805  
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betty.capaldi@asu.edu

**New Course Curriculum Form**

Arizona State University

E STS 329 Cultivating Technology in Newly Industrializing Countries 3.0 - Spring 2009 | CL: None

**Originator:** Silvia Llamas-Flores **Status:** Approved **Department:** Social and Behavioral Sciences (Polytechnic)**Date Created:** 05/08/2008 **Submitted:** 05/14/2008 **Completed:** 10/20/2008 **To****ACETS:****Campus:** E**College:** Applied Arts and Sciences**Subject:** STS**Number:** 329**Title:** Cultivating Technology in Newly Industrializing Countries**Abbreviated title:** Cultiv Tech in New Ind Ctry**Semester hours:** 3.0**Effective semester:** - Spring**Summer****justification:****Effective year:** 2009**Catalog description:** Covers specific issues relating to building technological capability in Newly Industrializing Countries.**Primary component:** Lecture**Graded component:** \*Same as primary component**Additional component(s):****Optional component(s):****Cross-listing:** | CL: None**Cross-listed course (s):****Enrollment Requirements?:** Yes**Prerequisite(s):** STS 101, 301 or instructor approval**Conditional prerequisite(s):****Corequisite(s):****Pre-/corequisite(s):****Repeat for credit:** No**Total hours allowed:****Total completions allowed:****Multiple**

ARIZONA STATE UNIVERSITY EAST/TEMPE CAMPUS

GENERAL STUDIES PROGRAM COURSE PROPOSAL COVER FORM

Courses submitted to the GSC between 2/1 and 4/30 if approved, will be effective the following Spring.

Courses submitted between 5/1 and 1/31 if approved, will be effective the following Fall.

(SUBMISSION VIA ADOBE.PDF FILES IS PREFERRED)

DATE 10/31/2008

- 1. ACADEMIC UNIT: ASUP SOCIAL AND BEHAVIORAL SCIENCES
2. COURSE PROPOSED: STS 329 Cultivating Technlgy in Newly Indus Countries (3)
3. CONTACT PERSON: Name: Sherrie Loomis Phone: 480/727-1984
Mail Code: 0180 E-Mail: sherrie.loomis@asu.edu

- 4. ELIGIBILITY: New courses must be approved by the Tempe Campus Curriculum Subcommittee and must have a regular course number.
5. AREA(S) PROPOSED COURSE WILL SERVE. A single course may be proposed for more than one core or awareness area.

Core Areas

Awareness Areas

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

- Global Awareness-G
Historical Awareness-H
Cultural Diversity in the United States-C
(Note: one course per form)

- 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: [X] No [ ] Yes; Please identify courses:

Is this a multisection course?: [X] No [ ] Yes; Is it governed by a common syllabus?

NICHOLAS ALOZIE
Chair/Director (Print or Type)

Nicholas Alozie
Chair/Director (Signature)

Date: 10/29/2008

**Syllabus**  
**Arizona State University Polytechnic Campus**  
**School of Applied Arts and Sciences**  
**Social and Behavioral Sciences**

**STS 329 Cultivating Technology in Newly Industrializing Countries**

Fall, 2008

Schedule Line Number:

Satisfies General Studies:

Venue: Santa Catalina Hall 133  
Time: 2:00PM – 3:15PM  
Days: Monday and Wednesday  
Meeting Dates: 8/25/2008 – 12/9/2008

Professor: Dr. Nicholas Alozie  
Office: Santa Catalina (SANCA) 252M  
Tel.: (480) 727-1395  
E-Mail: [Alozie@asu.edu](mailto:Alozie@asu.edu)

Class Format: Lecture/Discussion  
Office Hours: Mondays & Wednesdays  
12:00pm-1:30pm, and by appointment.

**Course Description:**

This course focuses on cultivating modern *industrial* technological capacity in developing countries. It covers specific issues relating to building technological capability in Newly-Industrializing Countries. Areas of study include: the concept of technology leader and technology follower environments; the transfer of technology from "leader" countries – "traditional", revised and new perspectives on why and how it happens, how and when it is successful, and who benefits from it; technological capability - the role of public and private sector R&D, indigenous technology learning and creating capability - the role of imports of technology; building human capital for technological capability; cultural factors affecting the form that technological effort takes and their success; the role of small firms and new enterprises in building technological capability.

**Course Learning Outcomes**

At the end of the course, students are expected to:

- Understand important economic issues of concern in newly industrializing countries.
- Understand the historical connections between technology and industrialization.
- Understand the broad global discourse on technology innovation, acceptance and usage.
- Understand the role of technology in promoting (or hindering) socioeconomic growth in newly industrializing countries.
- Develop critical analytical skills in interrogating the notion of "technology transfer."

- Recognize the nuances and complexities of socioeconomic processes in countries outside the United States.

### **Required Materials:**

1. Naushad Forbes, David Wield. (2002). *From Followers to Leaders: Managing Technology and Innovation*. Routledge.
2. Landau, Ralph and Nathan Rosenberg, eds. (1986). *The Positive Sum Strategy: Harnessing Technology for Economic Growth*. National Academy of Sciences. (A copy of this book will be reserved at the Polytechnic library. Students do not, therefore, need to buy this book since we'll be reading only three chapters from it.)
3. Relevant journal articles (available online). These additional readings are listed in the weekly course schedule that follows below.

### **Course Grading**

There are three mid-term exams, as well as the final exam. The final course grade will be the product of these exams and class participation (assessed through students' attendance and quality of their contributions during class discussions:

#### *Grading Distribution:*

Class Participation	10%
Mid-Term Exams	60% (20% each)
<u>Final Exam</u>	<u>30%</u>
Total	100%

#### *Grading Scale:*

90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
59 or less	E

#### *Incomplete Grades:*

A course grade of "Incomplete" will be given only in extreme situations because the sad story is that most students who request incompletes never finish the course.

Please visit <http://www.asu.edu/registrar/forms/regforms.html> under the Academic Record Forms section for the Incomplete Grade Request form, which is available in both *Word* and as a PDF. The form must be completed by the student, signed by the student, the instructor, and the department chair or school director. The completed form must be filed with Janice Frangella (Santa Catalina Hall, Room 233V) before the grade of "I" is given.

## **Student Conduct**

Students are required to adhere to the behavior standards listed in Arizona Board of Regents Policy Manual Chapter V – Campus and Student Affairs: Code of Conduct ([http://www.abor.asu.edu/1\\_the\\_regents/policymanual/chap5/chapter\\_v.htm#C.%20CODE%20OF%20CONDUCT](http://www.abor.asu.edu/1_the_regents/policymanual/chap5/chapter_v.htm#C.%20CODE%20OF%20CONDUCT)), ACD 125: Computer, Internet, and Electronic Communications (<http://www.asu.edu/aad/manuals/acd/acd125.html>), and the ASU Student Academic Integrity Policy ([http://www.asu.edu/studentaffairs/studentlife/judicial/academic\\_integrity.htm](http://www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm)).

Students are entitled to receive instruction free from interference by other members of the class. If a student is disruptive, an instructor may ask the student to stop the disruptive behavior and warn the student that such disruptive behavior can result in withdrawal from the course. An instructor may withdraw a student from a course when the student's behavior disrupts the educational process under USI 201-10 (<http://www.asu.edu/aad/manuals/usi/usi201-10.html>).

## **Accommodations for Disabilities**

Accommodations for disabilities will be made according to the policy of Arizona State University in compliance with the Americans with Disabilities Act. If you have concerns not addressed by these policies, reasonable accommodations may be made contingent upon circumstances and the approval of the instructors and administrators in the College of Education. For more details about ASU's Disability Resource Center, point your browser to <http://www.asu.edu/studentaffairs/ed/drc/>.

## **Student Support Services**

Polytechnic campus site: <http://www.poly.asu.edu/students/services/>

*The Writing Center at the Polytechnic Campus:* The Polytechnic Writing Center offers tutoring services to all students on any sort of writing project. Writing tutors can help with any stage of the writing process, including choosing a topic, brainstorming, clarifying a thesis, organization of ideas or paragraphs, grammar, citation styles, and more. The Center is located in the Academic Center Building on the Lower Level and will be open for the Fall 2008 semester beginning Tuesday, September 2. Tutors' availability will be posted on our website at <http://studentsuccess.asu.edu/polytechnic/writingschedule>. Although walk-ins are accepted, it is strongly recommended that you make an appointment. Please call (480) 727-1452 to schedule an appointment. Online tutoring is also available if you cannot come in. Visit the Writing Center's website (<http://studentsuccess.asu.edu/polytechnic/writing>) for more information.

*ASU Libraries* - offers 24/7 access to librarians through "Ask a Librarian" online chat and help by librarians in person at the Reference Desk during most hours the libraries are open.

[www.asu.edu/lib/](http://www.asu.edu/lib/)

Polytechnic campus link: <http://library.poly.asu.edu/>

*Counseling and Consultation* – provides confidential mental health and career counseling services for all ASU students. <http://www.asu.edu/studentaffairs/counseling/>

Polytechnic campus site (Student Counseling Services):

<http://www.poly.asu.edu/students/counseling/>

*Student Success Centers* – the Student Success Center (SSC) on each ASU campus provides an array of support services that promote students' academic success. The SSC supports classroom instruction by helping students become better learners and gain the confidence and skills to achieve their greatest possible academic success. <http://studentsuccess.asu.edu/>

*The Student Success Center at the Polytechnic Campus* provides a variety of support services that promote students' academic success. The SSC's programs help students to become better learners and to gain the confidence and skills to do well in their courses. At the Polytechnic campus, the SSC provides the following services FREE of charge to ASU students: (1) subject area tutoring, (2) writing tutoring for any writing assignment, (3) supplemental instruction for MAT 170 and CHM 113, (4) academic success workshops on topics like reading strategies and studying for exams, and (5) individual as well as group study space. For questions, please call (480) 727-1452 or stop by. For more information and for tutoring schedules, please visit our web site at <http://studentsuccess.asu.edu/polytechnic>. The SSC is located in the Academic Center Building (CNTR) on the Lower Level. To see a campus map, please visit [http://www.asu.edu/map/pdf/asu\\_map\\_poly\\_2008.pdf](http://www.asu.edu/map/pdf/asu_map_poly_2008.pdf).

*Career Services* – offers assistance to students in choosing a major, setting career goals, interviewing and job hunting strategies. <http://career.asu.edu/>

Polytechnic campus site: <http://www.poly.asu.edu/students/career/>

*Student Financial Aid Office* – offers information and applications for student funding such as grants, loans, scholarships and student employment. [www.asu.edu/fa/](http://www.asu.edu/fa/)

Polytechnic campus site: <http://www.asu.edu/fa/> (same as general ASU site)

*Student Health and Wellness Center* – provides non-emergency medical health care to all ASU students regardless of insurance status. Most visits with a physician or nurse practitioner are free of charge, but fees will be incurred for x-rays, lab results, etc. [www.asu.edu/health/](http://www.asu.edu/health/)

Polytechnic campus site: <http://www.poly.asu.edu/students/health/>

*Student Recreational Center* – offers individual and group fitness opportunities, as well as information on nutrition and wellness, and massages. Use of the general facilities (weights, circuit training and cardio machines) are free, other services (yoga classes, massages) are fee-based. [www.asu.edu/src/](http://www.asu.edu/src/)

Polytechnic campus site: <http://www.poly.asu.edu/pac/>

*Student Legal Assistance* – provides legal advice and counsel free of charge to all ASU students in areas such as landlord-tenant law, credit reports and collection issues, taxability of scholarships and grants, etc. Notary service is also available at no charge.

<http://www.asu.edu/mu/legal/>

*Help Wiki* – provides a frequently asked questions resource for technology users at ASU.

<http://wiki.asu.edu/help/>



Information Technology on the Polytechnic campus: <http://www.poly.asu.edu/it/>

*EMPACT Crisis Hotline* – offers free 24-hour support for mental health crises. Call (480) 784-1500 in the Phoenix area, (866) 205-5229 for the toll-free number outside of Phoenix, and (480) 736-4949 for the sexual assault hotline. All services are free and confidential.

<http://www.empact-spc.com/>

### Class Schedule – Topical Outline:

Week	Topic	Reading	Assignment
1	Introduction; Course mechanics explained	Perry (1986) “Cultivating technological innovation.”	Class discussion
2	Technology and industrialization: The historical experience	Rosenberg (1986) “The impact of technological innovation: A historical view	Class discussion
3	Alex Inkeles, industrialization, modernization, and the quality of life	Bechtel (1986) “Technology and its role in modern society.”	Class discussion
4	The advantage of latecomers: Differences in technology, 1850 and 1950	Forbes and Wield, Ch.1	Class discussion <b>Midterm exams</b>
5	Indigenous technological capability: What is it?	Forbes and Wield, Ch. 2	Class discussion
6	What makes technology special?	Forbes and Wield, Ch. 3	Class discussion
7	Innovation on the shop-floor: From process to product	Forbes and Wield, Ch. 4	Class discussion
8	National Innovation Systems; Infant-industry protection and learning	Forbes and Wield, Ch. 5	Class discussion
9	Does technology policy matter? Miracle, myths, potential, performance; The Japanese experience and lessons for developing countries	Forbes and Wield, Ch. 6	Class discussion <b>Midterm exams</b>
10	From Policy to Management: The firm and innovation entrepreneurship in technology development	Forbes and Wield, Ch. 7	Class discussion

11	Government Intervention and Technological Capability	Forbes and Wield, Ch. 8	Class discussion
12	Human capital: Education, culture, technology and development	Awang (2004) "Human capital and technology development in Malaysia." <i>International Education Journal</i> , Vol. 5 No. 2, pp 239-246	Class discussion
13	Managing the R&D Process Research and Innovation in NICs	Forbes and Wield (2002). "Managing R&D in technology followers." <i>Research Policy</i> , Vol. 29, Issue 9. pp. 1095-1109.	Class discussion
14	Design Leadership for Technology Followers	Schepers, Wetzels and R "Leadership styles in tech acceptance: Do followers what leaders preach?" <i>M Service Quality</i> , Vol. 15, 496-508.	Class discussion <b>Midterm exams</b>
15	Building a Culture for Innovation in Followers Strategy and Technology	Forbes and Wield, Ch. 8	Class discussion
16	Conclusions: Policies for Technology in an age of Liberalization Technology Strategy for Technology-followers	Forbes and Wield, Ch. 9	Class discussion

### Final Examination

## Arizona State University Criteria Checklist for

### GLOBAL AWARENESS [G]

#### Rationale and Objectives

Human organizations and relationships have evolved from being family and village centered to modern global interdependence. The greatest challenge in the nuclear age is developing and maintaining a global perspective which fosters international cooperation. While the modern world is comprised of politically independent states, people must transcend nationalism and recognize the significant interdependence among peoples of the world. The exposure of students to different cultural systems provides the background of thought necessary to developing a global perspective.

Cultural learning is present in many disciplines. Exposure to perspectives on art, business, engineering, music, and the natural and social sciences that lead to an understanding of the contemporary world supports the view that intercultural interaction has become a daily necessity. The complexity of American society forces people to balance regional and national goals with global concerns. Many of the most serious problems are world issues and require solutions which exhibit mutuality and reciprocity. No longer are hunger, ecology, health care delivery, language planning, information exchanges, economic and social developments, law, technology transfer, philosophy, and the arts solely national concerns; they affect all the people of the world. Survival may be dependent on the ability to generate global solutions to some of the most pressing problems.

The word university, from universitas, implies that knowledge comes from many sources and is not restricted to local, regional, or national perspectives. The Global Awareness Area recognizes the need for an understanding of the values, elements, and social processes of cultures other than the culture of the United States. Learning which recognizes the nature of others cultures and the relationship of America's cultural system to generic human goals and welfare will help create the multicultural and global perspective necessary for effective interaction in the human community.

Courses which meet the requirement in global awareness are of one or more of the following types: (1) in-depth area studies which are concerned with an examination of culture-specific elements of a region of the world, country, or culture group, (2) the study of contemporary non-English language courses that have a significant cultural component, (3) comparative cultural studies with an emphasis on non-U.S. areas, and (4) in-depth studies of non-U.S. centered cultural interrelationships of global scope such as the global interdependence produced by problems of world ecology, multinational corporations, migration, and the threat of nuclear war.

Proposer: Please complete the following section and attach appropriate documentation.

<b>ASU--[G] CRITERIA</b>			
GLOBAL AWARENESS [G]			
YES	NO		Identify Documentation Submitted
<b>X</b>	<input type="checkbox"/>	1. Studies <b>must</b> be composed of subject matter that addresses or leads to an understanding of the contemporary world outside the U.S.	Syllabus
		2. Course must be <b>one or more</b> of following types (check all which may apply):	
<b>X</b>	<input type="checkbox"/>	a. In-depth area studies which are concerned with an examination of culture-specific elements of a region, country or culture group. <b>The area or culture studied must be non-U.S. and the study must contribute to an understanding of the contemporary world.</b>	Syllabus
<input type="checkbox"/>	<input type="checkbox"/>	b. Contemporary non-English language courses that have a significant cultural component.	
<b>X</b>	<input type="checkbox"/>	c. Comparative cultural studies in which most, i.e., more than half, of the material is devoted to non-U.S. areas.	Syllabus
<b>X</b>	<input type="checkbox"/>	d. In-depth studies of non-U.S. centered cultural interrelationships of global scope, such as the global interdependence produced by problems of world ecology, multinational corporations, migration, and the threat of nuclear war. <b>Most, i.e., more than half, of the material must be devoted to non-U.S.</b>	Syllabus

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Course Prefix	Number	Title	Designation
STS	329	CULTIVATING TECHNOLOGY IN NEWLY INDUSTRIALIZING COUNTRIES	G

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.

Criteria (from checksheet)	How course meets spirit (contextualize specific examples in next column)	Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)
<p>Studies must be composed of subject matter that addresses or leads to an understanding of the contemporary world outside the U.S. Course must be in-depth area studies which are concerned with an examination of culture-specific elements of a region, country or culture group. The area or culture studied must be non-U.S. and the study must contribute to an understanding of the contemporary world.</p>	<p>This course focuses on cultivating modern <i>industrial</i> technological capacity in developing countries. It covers specific issues relating to building technological capability in Newly-Industrializing Countries. Areas of study include: the concept of technology leader and technology follower environments; the transfer of technology from "leader" countries -- "traditional", revised and new perspectives on why and how it happens, how and when it is successful, and who benefits from it; technological capability - the role of public and private sector R&amp;D, indigenous technology learning and creating capability - the role of imports of technology; building human capital for technological capability; cultural factors affecting the form that technological effort takes and their success; the role of small firms and new enterprises in building technological capability.</p>	<p><b>The Syllabus: Course Learning Outcomes</b></p> <p>At the end of the course, students are expected to:</p> <ul style="list-style-type: none"> <li>• Understand important economic issues of concern in newly industrializing countries.</li> <li>• Understand the historical connections between technology and industrialization.</li> <li>• Understand the broad global discourse on technology innovation, acceptance and usage.</li> <li>• Understand the role of technology in promoting (or hindering) socioeconomic growth in newly industrializing countries.</li> <li>• Develop critical analytical skills in interrogating the notion of "technology transfer."</li> <li>• Recognize the nuances and complexities of socioeconomic processes in countries outside the United States.</li> </ul>

<p>Comparative cultural studies in which most, i.e. more than half, of the material is devoted to non-U.S. areas.</p>	<p>As the topical outline shows, this course emphasizes both the distinct knowledge of the social and behavioral sciences and the distinct methods of inquiry of the social and behavioral sciences. It applies theories of international studies in explicating core social science material.</p>	<p>As the syllabus shows, more than 90% of this course treats comparative cultural material devoted to non-U.S. areas. The topical outlines showcase classical social and behavioral sciences knowledge and methods of inquiry. These are applied to issues of technology and industrialization, industrialization and modernization, the north and south divide, indigenous technological development, and infant industry protectionism.</p>
<p>In-depth studies of non-U.S. centered cultural interrelationships of global scope, such as the global interdependence produced by problems of world ecology, multinational corporations, migration, and the threat of nuclear war. Most, i.e., more than half, of the material must be devoted to non-U.S.</p>	<p>The course relies on accumulated literature predicated upon practical and theoretical evidence. This literature focuses primarily on social and behavioral sciences material articulated in international economic relations.</p>	<p>On pages 5-6 of the syllabus, the course outline lays out the selected topics and their relevance to both core social science and international studies.</p>