

## Methodology for Determining Sustainability Focused and Related Undergraduate Courses

Our sustainability focused/related course inventory examines the courses offered at Texas A&M University – College Station (TAMU) for a one year period from Fall 2010 through Summer 2011. The data is restricted to undergraduate classes offered during that timeframe. All undergraduate classes are required to submit an electronic copy of their syllabi for University record each semester; graduate classes are exempt from this protocol. Syllabi are mainly submitted in PDF format, but are occasionally submitted as a website. We used the combined syllabi and websites to create our course inventory.

### Database Creation

Computer Information Services (CIS) generated our primary database which consists of URL links to course syllabi in PDF format. CIS created a second database that consists of URL links to course websites where syllabi are posted. Course Record Number (CRN), URL, subject, course, and section were all used to individually identify each course. Every class offered, including different sections of the same class, was included in the database. Table 1 shows the distribution of syllabi reviewed for each semester.

Semester	Number of Syllabi in PDF Format	Number of Syllabi via websites	TOTALS
Fall 2010	5,458	287	5,745
Spring 2011	5,146	230	5,376
Summer 2011	888	27	915
		<b>Grand Total</b>	<b>12,036</b>

Table 1

CIS further organized the database by searching the syllabi using 71 sustainability keywords generated by the Office of Sustainability (see list here). Each time a keyword was found in a syllabus it was recorded in the database. Syllabi were sorted by most to least keywords in the database.

### Database Review

The Office of Sustainability outlined several parameters to review and code each syllabus in the database. Sustainability staff used the definitions of sustainability focused/related courses provided in the STARS 1.0 manual to classify courses.<sup>1</sup> The decision was made to code each class as: not related, related, or focused on the concept of sustainability. To make the coding process more accessible for analysis a numeric and color-coding system was created. A breakdown of the coding system is shown in Table 2.

<sup>1</sup> According to STARS 1.0, Sustainability-focused courses concentrate on the concept of sustainability, including its social, economic, and environmental dimensions, or examine an issue or topic using sustainability as a lens. Sustainability-related courses incorporate sustainability as a distinct course component or module or concentrate on a single sustainability principle or issue.

Number and/or Color Code	Explanation of Coding
0 / white	Not Related
1 / blue	Related
2 / green	Focused
3 / yellow	Unsure
99 / pink	Broken URL link
grey	Duplicate course
orange	Dually listed course

Table 2

Additionally, any related or focused courses were further coded by identifying which aspect/s of sustainability was covered in class. These designations are: EN = Environmental, SO = Social, and EC = Economic.

To ensure that staff were coding the data in a similar manner numerous meetings were held to clarify how we defined sustainability related/focused classes. Spot-checks were conducted by senior sustainability staff members to ensure reliability of the coding process. After all preliminary coding was complete, the sustainability staff collectively went through all courses coded as “unsure” and made a final decision as a group. During these sessions coding decisions were fine-tuned, the name of each professor teaching a focused/related course was added to the database, and courses were re-evaluated a final time.

### Total Course Count

After the review process, courses that were dually listed (234) and syllabi with non-functional broken links (120) were subtracted from the grand total (12,036) to bring the total number of courses counted to 11,682. Of these courses, 208 were coded as focused and 1,359 were coded as related. Table 3 shows a breakdown of the total course count

	Total Courses	Focused	Related	Dually Listed	Broken Links
Fall 10	5,344	98	583	103	11
Spring 10	5,030	91	670	100	16
Summer 11	872	14	101	16	0
Weblinks	436	5	5	15	93
<b>TOTALS</b>	<b>11,682</b>	<b>208</b>	<b>1,359</b>	<b>234</b>	<b>120</b>

Table 3

### Exceptions

STARS gives the option of either including or excluding duplicate sections from the total course count. We choose to include duplicate sections in our analysis. We choose this option for two reasons. First, it simplified our already time intensive review process. Second, sometimes duplicate sections were taught by different professors who may or may not include focused/related concepts in their curriculum. In particular, this was found in Sociology (SOCL) 205, Geology (GEOL) 101, Undergraduate Studies (UGST) 181, and Oceanography (OCNG) 251.

### Department Review Process

After all course information was compiled and analyzed, a new database was created to determine the number of departments on campus that offered a focused/related course during our time period. Our original database classified each course by subject. All of the focused/related subjects were compiled and placed in a list and the same was done for non-related subjects. From these lists, each subject was placed in the proper department. A total of 92 departments were identified and 72 offered at least one course focused on, or related to sustainability.

Some assumptions were made when computing the total number of departments:

1. A number of interdisciplinary programs are offered at TAMU that cannot be classified under one department. We choose to count each interdisciplinary program as a department.
2. Some colleges at TAMU (i.e. The Dwight Look College of Engineering) offer a number of classes that are categorized under the college, not the departments within the college. When this happened we counted the college as a department.
3. TAMU offers a wide range of first year seminars categorized as Undergraduate Studies that are not attached to a department. We choose to count Undergraduate Studies as a department in our analysis.
4. TAMU has different institutes (i.e. The English Language Institute) and centers (i.e. The Student Learning Center) that offer a number of classes. We counted these as departments.

### Database Process Review

Our coding process has advantages and disadvantages that must be understood. The biggest advantage of our methodology is the comprehensive nature of our analysis. Aside from a few broken links, we were able to thoroughly analyze every class offered at Texas A&M University – College Station from Fall 2010 to Summer 2011.

This offers an advantage over course inventory methodology that gets data about courses directly from departments or professors that may contain inconsistencies or nonresponse. By directly analyzing the syllabi we were able to pinpoint focused or related sustainability classes that may have been missed by departments or professors who didn't realize they are actually teaching sustainability concepts.

### Database Process Limitations

As is the case with any data analysis, our methodology is not perfect and it is important to keep in mind that our findings are subject to a margin of error. Our margin of error can be attributed to a few things:

1. Due to broken links we did not have access to 120 classes; therefore, our findings may have missed some classes that are either related or focused.
2. Because sustainability staff were making decisions on courses, some subjectivity is inevitable in the decision making process. We fine-tuned our methodology and coordinated to be as objective as possible, but all subjectivity cannot be fully eliminated. As a result, classes may have been missed or counted that others may not agree with. While we acknowledge this potential shortcoming, we are confident our process was thorough and uniform.
3. We made assumptions during our coding process:
  - 1) Syllabi accurately reflected what was taught in the course.
  - 2) Classes that make cultural relevancy an important lens in their class are related to the social component of sustainability.