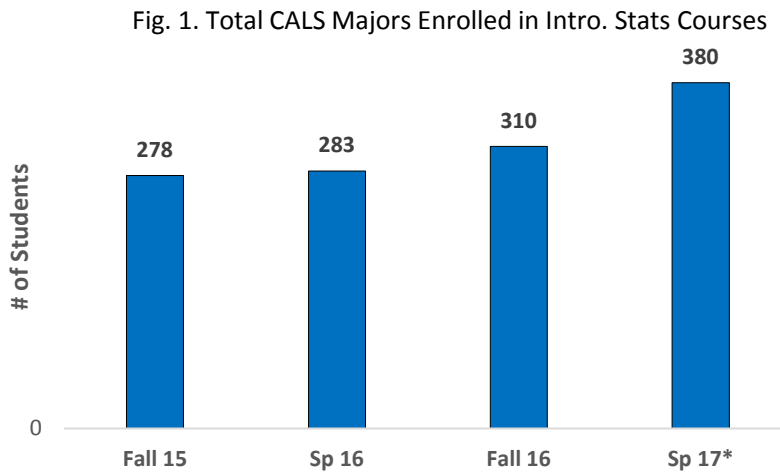


AREC PROPOSAL TO TEACH INTRODUCTORY STATISTICS IN CALS

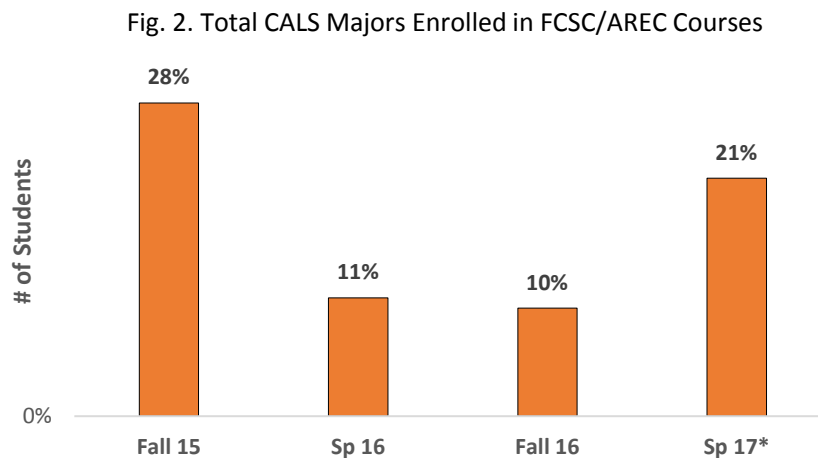
Introductory Statistics Enrollments. Introductory statistics courses have been taught by six departments across campus in the past two academic years. FCSC was the only CALS unit teaching introductory statistics until spring 2017 when Satheesh Aradhyula taught a cross-listed AREC/FCSC201 course. The other academic units teaching introductory statistics and their classes are:

ISTA116, *Statistical Foundations for the Information Age*, (3 units) School of Information, SBS
MATH163, *Basic Statistics*, (3 units), School of Mathematics, Science
MATH263, *Introduction to Statistics and Biostatistics*, (3 units), School of Mathematics, Science
PSY230, *Psychological Measurement and Statistics*, (3 units), Psychology, Science
SBS 200, *Introduction to Statistics*, (4 units), SBS

Total enrollment of CALS majors during regular semesters in introductory statistics courses has grown over the last two academic years (Figure 1 below)



The proportion of CALS majors taking introductory statistics in FCSC or AREC is relatively small (Figure 2 below)



If all CALS majors had taken introductory statistics in CALS rather than in SBS or Science, the increment in enrollments and student credit hours would have been sizable.

	AY15-16	AY16-17
Enrollment	453	487
SCH	1,359	1,461

Clearly, not all CALS majors will take introductory statistics within CALS because of potential scheduling conflicts. Students in many CALS majors are currently offered a list of several introductory statistics courses, in CALS and outside, in order to provide flexibility in scheduling and student choice. However, if student advisors suggested CALS options as being preferable, some potentially large proportion of CALS majors would take introductory statistics in CALS.

In several of the CALS majors with the largest enrollments—Nutritional Science, Veterinary Science, Microbiology, and Animal Science—practically no students take introductory statistics in CALS (see Table 1 below). In fact, all majors except those in FCSC and AREC have almost no enrollments in CALS.

Table 1. Number of CALS Students Enrolled in Introductory Statistics Courses by CALS Major

Primary Major Plan	Fall 15	Sp 16	Fall 16	Sp 17	Total	In CALS	% CALS
Nutritional Sciences	41	44	54	89	228	3	1%
Pre-Retailing & Consumer Science	48	31	64	64	207	200	97%
Veterinary Science	48	62	41	57	208	0	0%
Pre-Family Studies & Hum Dev	53	27	66	43	189	143	76%
Animal Sciences	21	30	21	24	96	0	0%
Microbiology	25	23	18	22	88	0	0%
Agribusiness Economics & Mgmt	7	25	9	34	75	26	35%
Agricultural Tech Mgmt & Educ	14	15	13	14	56	0	0%
Natural Resources	8	8	13	19	48	1	2%
Environmental Sciences	7	8	4	2	21	0	0%
Environ & Water Resource Econ	1	2	1	6	10	4	40%
No Major Selected Ag Life Sci	1	3	3	4	11	0	0%
Sustainable Plant Systems	2	2	2	1	7	0	0%
Family Studies & Human Dev	2	1	1		4	4	100%
Plant Sciences		2		1	3	0	0%
Crop Production					0	0	0%
Total	278	283	310	380	1,251	381	30%

Proposed Course. AREC proposes a new course, AREC 239, Introductory Statistics (4 units) with initial offering in spring semester 2018 as a face-to-face class. AREC 239 would be aimed at servicing all CALS majors, particularly those in which students have taken introductory statistics outside of CALS. It is difficult to predict how many CALS majors would opt for an AREC class in spring 2018. Past spring enrollments of CALS majors in introductory statistics have ranged from 283 (2016) to 380 (2017). A

relatively conservative estimate would be 125 students, which would generate an additional 375 SCH or about \$75k in RCM revenue from the first offering. Subsequent offerings of AREC239 could be made in fall 2018. Depending on student demand, AREC239 could also be offered in first summer session in 2019.

Rationale of New Course. The primary reason for offering a new introductory statistics course to substitute for non-CALS courses is to provide selected CALS majors a course in which college algebra is a pre-requisite.

Of the five introductory statistics currently taught on campus, two courses—FCSC201 and PSY230—do not require college algebra as a pre-requisite. Students in Veterinary Science, Microbiology, and Animal Science cannot take either FCSC201 or PSY230 to satisfy their statistics requirements. Hence, there is no existing CALS introductory statistics course, which could substitute for non-CALS courses.

Students in AREC can take the cross-listed FCSC/AREC201 course but a pre-requisite of college algebra cannot be enforced because FCSC does not want college algebra as a pre-requisite. AREC students would be better served to have a course in which college algebra is a pre-requisite.

With AREC239 taught within CALS, we can ensure the statistical concepts and methods taught are brought to life with examples relevant to the life and social sciences. As a 4-unit class with 150 minutes of lecture and 50 minutes of discussion, students will have the opportunity to deepen their understanding of concepts, methods, and applications in the discussion section.

In sum there are three salient reasons to establish AREC239 as a new introductory course for CALS majors:

1. Provide a course with college algebra as a pre-requisite.
2. Ensure relevant life and social science examples are taught.
3. Deepen students' understanding with a 1-unit discussion section in addition to 3 units of lecture.