

Astronomy Program Review

2011-2012

1. Program Description

A. Description

Astronomers use the principles of physics and mathematics to answer questions about the fundamental nature of the universe and about celestial bodies such as the sun, moon, planets, and stars. They may apply their knowledge to problems in navigation and space flight.

B. Program Student Learning Outcomes - Successful students in the program are able to:

1. Describe the evolution of models of the universe based on early and the most recent astronomical observations.
2. Express how astronomical concepts and understanding are derived from observation.
3. Show how well-understood physical laws can be applied to interpret and explain astronomical observations.
4. Analyze and interpret observation data in terms of astronomical models.

C. College Level Student learning Outcomes

1. Critical Thinking and Problem Solving
2. Communication
3. Information Competency

D. Estimated Costs (Required for Certificate of Achievement ONLY)

	Cost
Enrollment Fees	
Books	
Supplies	
Total	

E. Criteria Used for Admission

F. Vision

Ventura College will be a model community college known for enhancing the lives and economic futures of its students and the community.

G. Mission

Ventura College, one of the oldest comprehensive community colleges in California, provides a positive and accessible learning environment that is responsive to the needs of a highly diverse student body through a varied selection of disciplines, learning approaches and teaching methods including traditional classroom instruction, distance education, experiential learning, and co-curricular activities. It offers courses in basic skills; programs for students seeking an associate degree, certificate or license for job

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placement and advancement; curricula for students planning to transfer; and training programs to meet worker and employee needs. It is a leader in providing instruction and support for students with disabilities. With its commitment to workforce development in support of the State and region's economic viability, Ventura College takes pride in creating transfer, career technical and continuing education opportunities that promote success, develop students to their full potential, create lifelong learners, enhance personal growth and life enrichment and foster positive values for successful living and membership in a multicultural society. The College is committed to continual assessment of learning outcomes in order to maintain high quality courses and programs. Originally landscaped to be an arboretum, the College has a beautiful, park-like campus that serves as a vital community resource.

H. Core Commitments

Ventura College is dedicated to following a set of enduring Core Commitments that shall guide it through changing times and give rise to its Vision, Mission and Goals.

- Student Success
- Respect
- Integrity
- Quality
- Collegiality
- Access
- Innovation
- Diversity
- Service
- Collaboration
- Sustainability
- Continuous Improvement

I. Degrees/Certificates

Program's courses are designed to articulate to UC and CSU for transfer students.

J. Program Strengths, Successes, and Significant Events

Introductory Astronomy provides (particularly non-science) students with a highly motivational and math-accessible science course. The format of the course allows new discoveries in astronomy to be immediately incorporated into the course. This is particularly true for the on-line version which does not rely on a printed text but on a CD in which new topics can be incorporated almost immediately. Each semester the CD contents are evaluated and modified to take into account recent advances in astronomy. The D2L course site also allows the instructor to quickly focus on any new astronomical events as a class discussion. We attribute the high level of motivation and student success to this approach to teaching astronomy.

An ebook version of the text will be available next year. It will be an epub format to be compatible with ipad and Kindle (and even iphone).

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K. Organizational Structure

President: Robin Calote

Executive Vice President: Ramiro Sanchez

Dean: David Oliver

Department Chair:

Instructors and Staff

Name	David Doreo
Classification	Professor
Year Hired	1984
Years of Work-Related Experience	
Degrees/Credentials	B.A., M.S.

Name	Steve Quon
Classification	Professor
Year Hired	1991
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.A., Ph.D.

Name	Colin Terry
Classification	Professor (Part-Time)
Year Hired	1987
Years of Work-Related Experience	
Degrees/Credentials	M.S., Ph.D.

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2. Performance Expectations

A. Program Student Learning Outcomes - Successful students in the program are able to:

1. Describe the evolution of models of the universe based on early and the most recent astronomical observations.
2. Express how astronomical concepts and understanding are derived from observation.
3. Show how well-understood physical laws can be applied to interpret and explain astronomical observations.
4. Analyze and interpret observation data in terms of astronomical models.

B. Student Success Outcomes

1. The program will increase its retention rate from the average of the **program's** prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.
2. The program will increase its retention rate from the average of the **college's** prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.
3. The program will increase the student success rates from the average of the **program's** prior three-year success rates. The student success rate is the percentage of students who receive a grade of c or better.
4. The program will increase the student success rates from the average of the **college's** prior three-year success rates. The student success rate is the percentage of students who receive a grade of C or better.
5. Students will complete the program earning certificates and/or degrees.

C. Program Operating Outcomes

1. The program will maintain WSCH/FTEF above the 525 goal set by the district.
2. Inventory of instructional equipment is functional, current, and otherwise adequate to maintain a quality-learning environment. Inventory of all equipment over \$200 will be maintained and a replacement schedule will be developed. Service contracts for equipment over \$5,000 will be budgeted if funds are available.
- 3.

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D. Courses to Student Learning Outcomes Map

Course to Program-Level Student Learning Outcome Mapping (CLSLO)

- I:** This program-level student learning outcome is **INTRODUCED** in this course.
 - P:** This program-level student learning outcome is **PRACTICED** in this course.
 - M:** This program-level student learning outcome is **MASTERED** in this course.
- Leave blank if program-level student learning outcome is not addressed.

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3. Operating Information

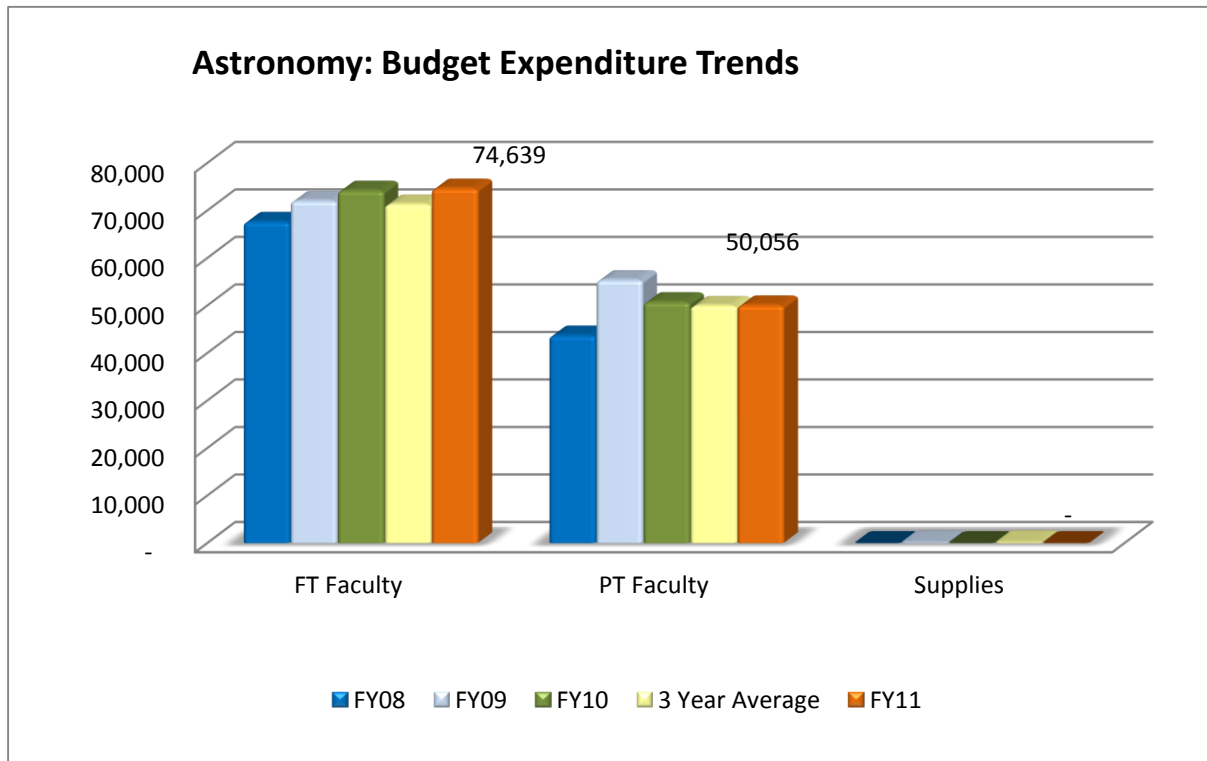
A1: Budget Summary Table

To simplify the reporting and analysis of the Banner budget detail report, the budget accounts were consolidated into nine expense categories. The personnel categories include employee payroll expenses (benefits). The “3 Year Average” was computed to provide a trend benchmark to compare the prior three year expenses to the FY11 expenses. The “FY11 College” expense percentages are included to provide a benchmark to compare the program’s expenses to the overall college expenses.

Category	Title	FY08	FY09	FY10	3 Year Average	FY11	Program Change from	Change from Prior Three
1	FT Faculty	67,639	72,037	74,204	71,293	74,639	5%	12%
2	PT Faculty	43,709	55,370	50,745	49,941	50,056	0%	-10%
7	Supplies	-	300	-	300	-	-100%	24%
	Total	111,348	127,707	124,949	121,335	124,695	3%	0%

A2: Budget Summary Chart

This chart illustrates the program’s expense trends. The data label identifies the FY11 expenses (the last bar in each group). The second-to-last bar is the program’s prior three year average.

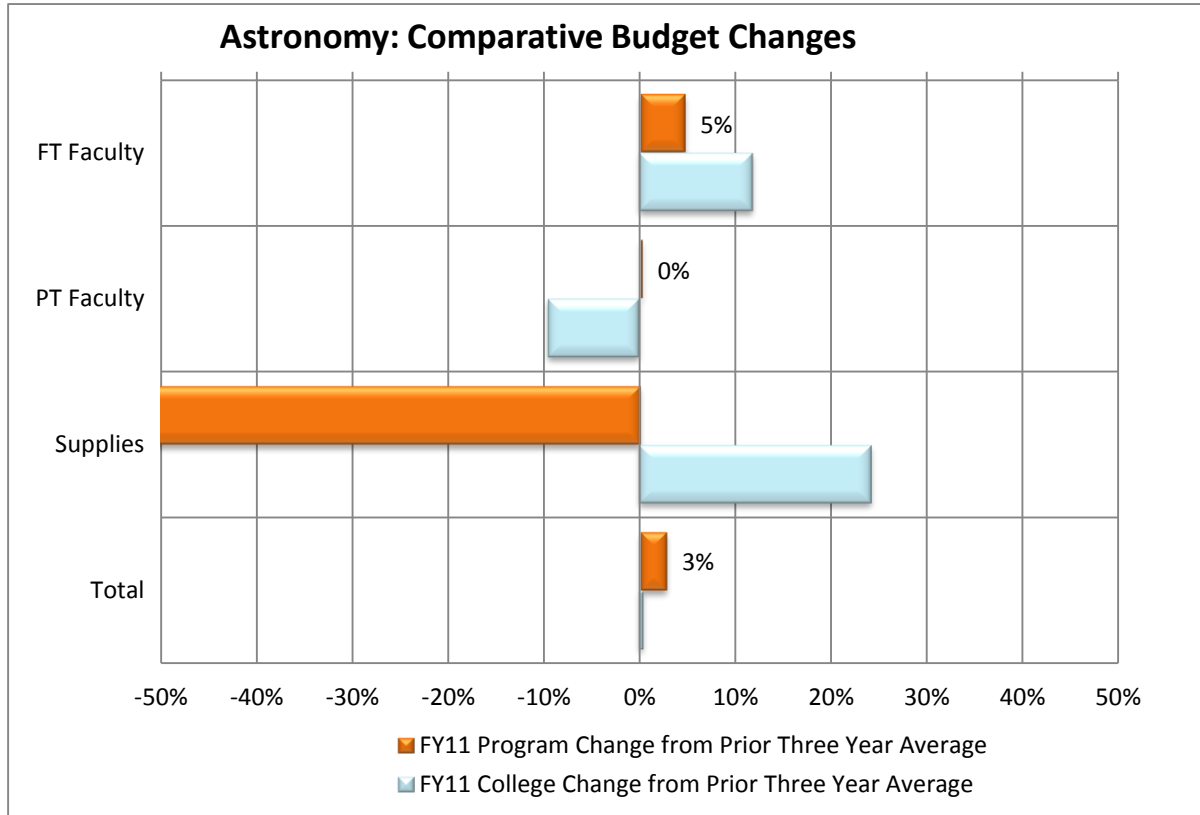


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A3: Comparative Budget Changes Chart

This chart illustrates the percentage change from the prior three year average expense to the FY11 expenses. The top bar for each budget category represents the program's change in expenses and includes the data label. The second bar represents the college's change in expenses.



A4: Budget Detail Report

The program's detail budget information is available in *Appendix A – Program Review Budget Report*. This report is a PDF document and is searchable. The budget information was extracted from the District's Banner Financial System. The program budget includes all expenses associated to the program's Banner program codes within the following funds: general fund (111), designated college equipment fund (114-35012), State supplies and equipment funds (128xx), and the technology refresh fund (445). The *Program Review Budget Report* is sorted by program (in alphabetical order) and includes the following sections: total program expenses summary; subtotal program expenses for each different program code; detail expenses by fund, organization and account; and program inventory (as posted in Banner). To simplify the report, the Banner personnel benefit accounts (3xxx) were consolidated into employee type benefit accounts (3xxx1 = FT Faculty, 3xxx2 = PT Faculty, 3xxx3 = Classified, etc.).

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A5: Interpretation of the Program Budget Information

The Astronomy Program consistently runs 3 live classroom sections, 1 fully online section, and 2 astronomy labs. This accounts for the level staffing of the program. The labs update "Starry Night" software with classroom licenses every few years. This accounts for the decrease in F'11 expenditures relative to the previous 3 years because the license did not require renewal in F'11. The slight 3% increase of F'11 expenditures can be accounted for in step increases.

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B1: Program Inventory Table

This chart shows the inventory (assets) as currently posted in the Banner Financial System. This inventory list is not complete and will require review by each program. Based on this review an updated inventory list will be maintained by the college. A result of developing a complete and accurate inventory list is to provide an adequate budget for equipment maintenance and replacement (total-cost-of-ownership). The college will be working on this later this fall.

Item	Vendor	Org	Fund	Purchased	Age	Price	Perm Inv #	Serial #
No equipment in the Banner Asset	Dell Computer C							

B2: Interpretation of the Program Inventory Information

No equipment inventory for this Program

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C1: Productivity Terminology Table

Sections	A credit or non-credit class. Does not include not-for-credit classes (community education).
Census	Number of students enrolled at census (typically the 4 th week of class for fall and spring).
FTES	Full Time Equivalent Students A student in the classroom 15 hours/week for 35 weeks (or two semesters) = 525 student contact hours. 525 student contact hours = 1 FTES. Example: 400 student contact hours = $400/525 = 0.762$ FTES. The State apportionment process and District allocation model both use FTES as the primary funding criterion.
FTEF	Full Time Equivalent Faculty A faculty member teaching 15 units for two semesters (30 units for the year) = 1 FTE. Example: a 6 unit assignment = $6/30 = 0.20$ FTEF (annual). The college also computes semester FTEF by changing the denominator to 15 units. However, in the program review data, all FTE is annual. FTEF includes both Full-Time Faculty and Part-Time Faculty. FTEF in this program review includes faculty assigned to teach extra large sections (XL Faculty). This deviates from the district practice of not including these assignments as part of FTEF. However, it is necessary to account for these assignments to properly produce represent faculty productivity and associated costs.
Cross Listed FTEF	FTEF is assigned to all faculty teaching cross-listed sections. The FTEF assignment is proportional to the number of students enrolled at census. This deviates from the practice of assigning load only to the primary section. It is necessary to account for these cross-listed assignments to properly represent faculty productivity and associated costs.
XL FTE	Extra Large FTE: This is the calculated assignment for faculty assigned to extra large sections (greater than 60 census enrollments). The current practice is not to assign FTE. Example: if census > 60, 50% of the section FTE assignment for each additional group of 25 (additional tiers).
WSCH	Weekly Student Contact Hours The term "WSCH" is used as a total for weekly student contact hours AND as the ratio of the total WSCH divided by assigned FTEF. Example: 20 sections of 40 students at census enrolled for 3 hours per week taught by 4.00 FTEF faculty. $(20 \times 40 \times 3) = 2,400$ WSCH / 4.00 FTEF = 600 WSCH/FTEF.
WSCH to FTES	Using the example above: $2,400$ WSCH x 35 weeks = 84,000 student contact hours = $84,000 / 525 = 160$ FTES (see FTES definition). Simplified Formulas: $FTES = WSCH/15$ or $WSCH = FTES \times 15$
District Goal	Program WSCH ratio goal. WSCH/FTEF The District goal was set in 2006 to recognize the differences in program productivity.

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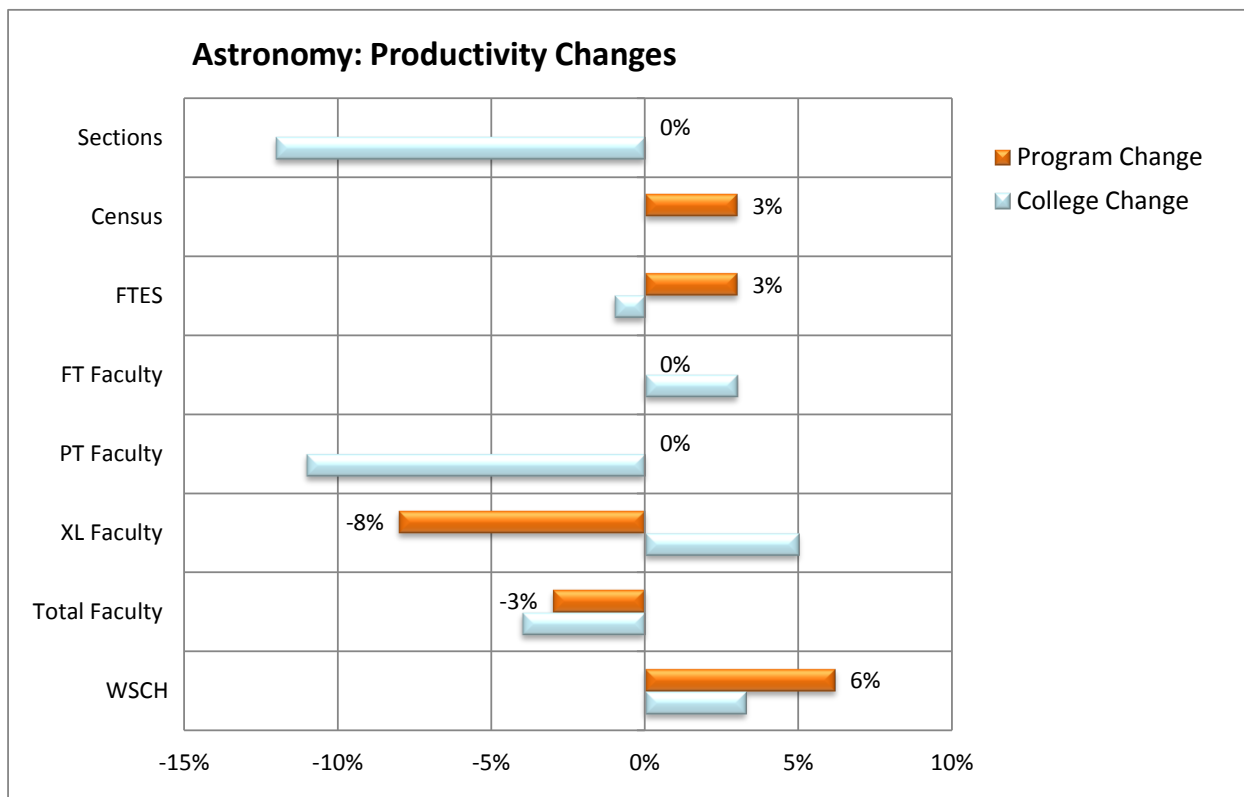
C2: Productivity Summary Table

This table is a summary of the detail information provided in the *Program Review Productivity Report*. The “3 Year Average” was computed to provide a trend benchmark to compare the results of the prior three years to the FY11 results. The “FY11 College” percentages are included to provide a benchmark to compare the program’s percentages.

Title	FY08	FY09	FY10	3 Year Average	FY11	Program Change	College Change
Sections	13	13	13	13	13	0%	-12%
Census	658	845	819	774	797	3%	0%
FTES	65	84	81	77	79	3%	-1%
FT Faculty	0.60	0.60	0.60	0.60	0.60	0%	3%
PT Faculty	0.60	0.60	0.60	0.60	0.60	0%	-11%
XL Faculty	0.60	1.10	0.90	0.87	0.80	-8%	5%
Total Faculty	1.80	2.30	2.10	2.07	2.00	-3%	-4%
WSCH	542	548	579	558	593	6%	3%

C3: Comparative Productivity Changes Chart

This chart illustrates the percentage change from the prior three year average productivity to the FY11 productivity. The top bar for each budget category represents the program’s change in productivity and includes the data label. The second bar represents the college’s change in productivity.



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C4: Interpretation of the Program Productivity Information

The number of Astronomy sections has remained constant. The increase in Census and FTES is a consequence of the increased enrollment in AST to fulfill GE science requirements, and the high popularity of the online AST lecture as well as the lab classes. This is reflected in the 6% increase in the WSCH. AST lecture classes have enrollment limits set at 71, and labs are limited to 24 due to lab equipment.

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D1: District WSCH Ratio Productivity Table

This table shows the District WSCH ratio (WSCH/FTEF) for each course by year for this program. Courses not offered during FY11 (last year) or without faculty load (independent study) are excluded. Because these are ratios, the combined average is computed using total WSCH and total FTEF (not the average of ratios). The formula used in this table distributes FTEF to all cross-listed sections (proportional to census enrollment) but does not include the associated faculty costs of extra large assignment.

District WSCH Ratio = WSCH / (PT FTE + FT FTE).

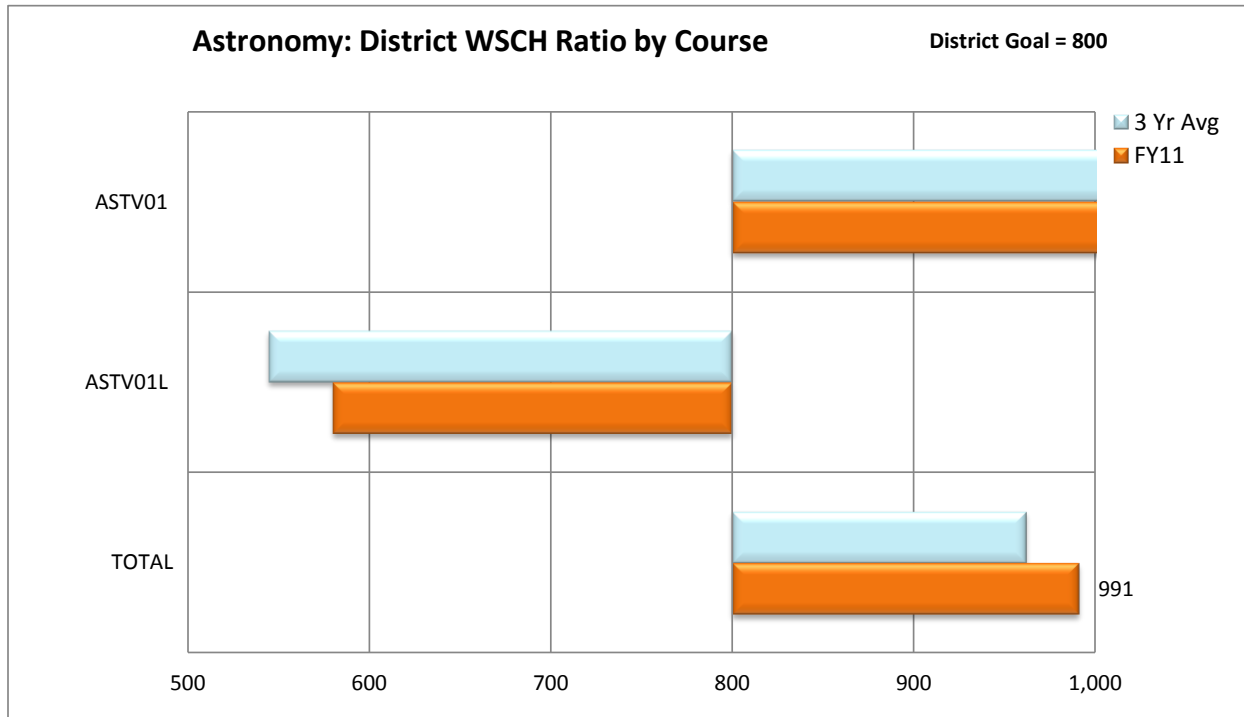
District WSCH Ratio: Weekly Student Contact Hours/(FT FTE+PT FTE)									
Course	Title	FY08	FY09	FY10	3 Yr Avg	FY11	Change	Dist Goal	% Goal
ASTV01	Elementary Astronomy	932	1,210	1,162	1,101	1,128	2%	800	141%
ASTV01L	Elementary Astronomy Lab	475	575	585	545	580	6%	800	73%
TOTAL	Annual District WSCH Ratio	818	1,051	1,018	962	991	3%	800	124%

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D2: District WSCH Ratio Productivity Chart

This chart illustrates the course level District WSCH ratio. The top bar shows the program's three year average. The second bar shows the program's FY11 WSCH ratio. The axis represents the District WSCH ratio goal set in 2006. The program's (or subject's) total WSCH ratio is shown as the TOTAL at the bottom of the chart.



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D3: College WSCH Ratio Productivity Table

This table shows the College's WSCH ratio (WSCH/FTEF) for each course by year for the program. Courses not offered during FY11 (last year) or without faculty load (independent study) are excluded. Because these are ratios, the combined average is computed using total WSCH and total FTEF (not the average of ratios). The formula used in this table includes the associated faculty costs of extra large sections. Faculty teaching extra large sections are paid stipends equal to 50% of their section FTE assignment for each group of 25 students beyond the first 60 students (calculated in this table as XL FTE). This College WSCH Ratio is a more valid representation of WSCH productivity. The College WSCH Ratio will be used in the program review process.

College WSCH Ratio = $WSCH / (PT\ FTE + FT\ FTE + XL\ FTE)$

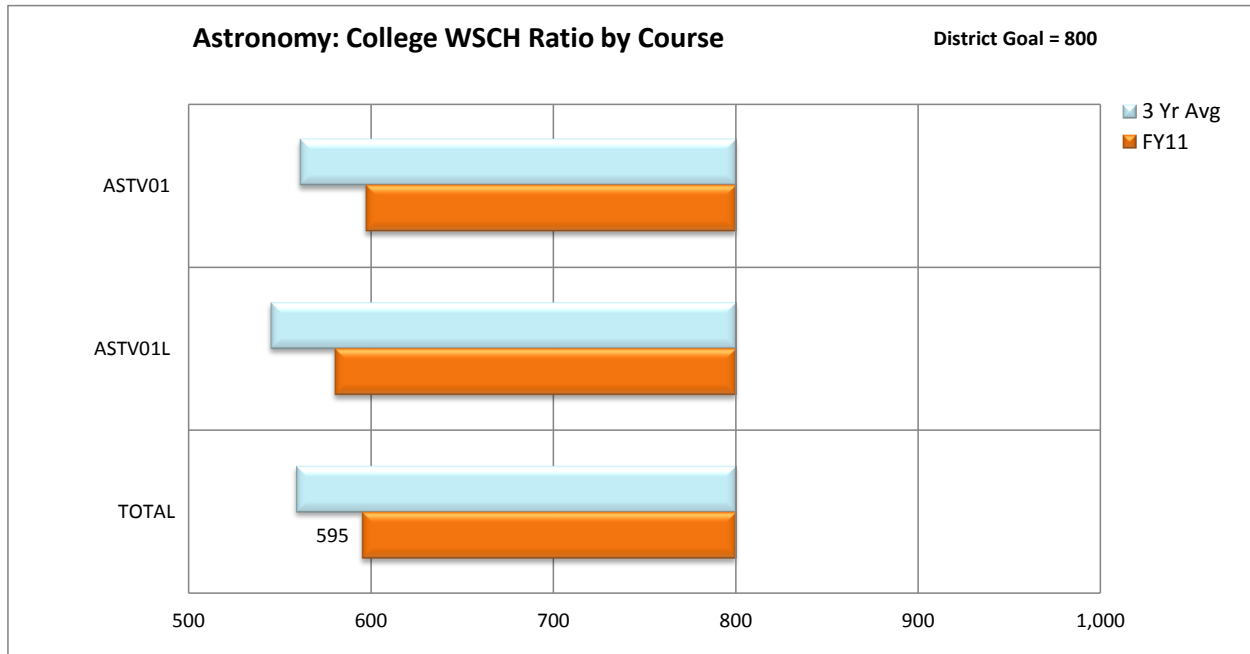
College WSCH Ratio: Weekly Student Contact Hours/(FT FTE + PT FTE + XL FTE)									
Course	Title	FY08	FY09	FY10	3 Yr Avg	FY11	Change	Dist Goal	% Goal
ASTV01	Elementary Astronomy	559	545	581	561	597	6%	800	75%
ASTV01L	Elementary Astronomy Lab	475	575	585	545	580	6%	800	73%
TOTAL	Annual College WSCH Ratio	545	549	581	559	595	6%	800	74%

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D4: College WSCH Ratio Productivity Chart

This chart illustrates the course level College WSCH ratio. The top bar shows the program's three year average. The second bar shows the FY11 WSCH ratio. The axis represents the District WSCH ratio goal set in 2006. The program's (or subject's) total WSCH ratio is shown as the TOTAL at the bottom of the chart. The computation used for the College WSCH Ratio includes XL FTE (extra-large sections) and the assignment of FTEF to all cross-listed sections (proportional to census enrollment).



D5: Productivity Detail Report

The program's detail productivity information is available in *Appendix B – Program Review Productivity Report*. This report is a PDF document and is searchable. The productivity information was extracted from the District's Banner Student System. The productivity information includes all information associated with the program's subject codes. The *Program Review Productivity Report* is sorted by subject code (alphabetical order) and includes the following sections: productivity measures and WSCH ratios by course by year.

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D6: Interpretation of the Program Course Productivity Information

Astronomy Program Productivity numbers not including XL assignments are strong (1128) for lecture and moderate (580) for lab. The moderation in lab is due to the fact that labs are necessarily capped at 24 due to limitations in equipment.

The modified Astronomy Program Productivity numbers including XL assignments are 597 for AST lecture and 580 for lab yielding a Program WSCH ratio of 595. This exceeds the Annual College WSCH Ratio of 525.

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E1: Student Success Terminology

Census	Number of students enrolled at Census (typically the 4 th week of class for fall and spring). Census enrollment is used to compute WSCH and FTES for funding purposes.
Retain	Students completing the class with any grade other than W or DR divided by Census Example: 40 students enrolled, 5 students dropped prior to census, 35 students were enrolled at census, 25 students completed the class with a grade other than W or DR: Retention Rate = 25/35 = 71%
Success	Students completing the class with grades A, B, C, CR or P divided by Census Excludes students with grades D, F, or NC.

E2: Student Success Summary

The following two tables summarize the detail information provided in the *Appendix C - Program Review Student Success Report*. The first table shows the number of students. The second table shows the percentage of students. Both tables show the distribution of student grades by year for the program (subject). They show the number of students who were counted at census, completed the class (retention), and were successful. The “3 Year Average” was computed to provide a trend benchmark to compare the prior three year expenses to the FY11 success measures. The “College” success percentages are included to compare the results of the program to the results of the college.

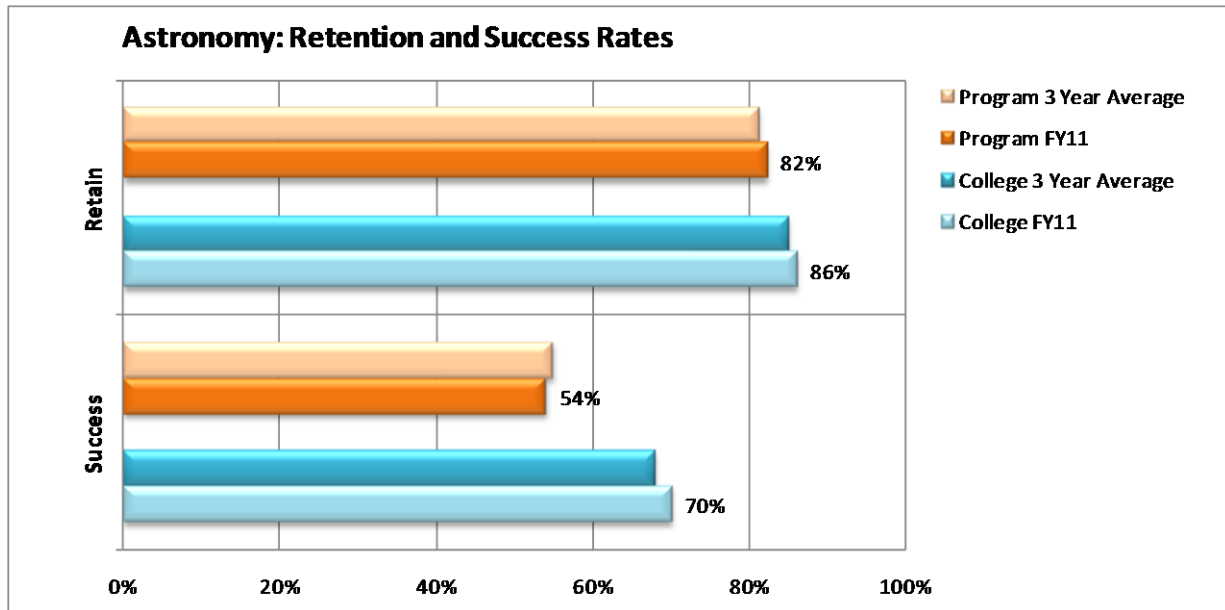
Subject	Fiscal Year	A	B	C	P/CR	D	F	W	NC	Census	Retain	Success
AST	FY08	139	102	112	1	33	130	124	2	644	517	354
AST	FY09	160	121	146	-	73	150	169	-	819	650	427
AST	FY10	180	124	154	-	67	142	128	-	796	667	458
AST	3 Year Avg	160	116	137	-	58	141	140	1	753	611	413
AST	FY11	156	89	180	-	88	132	140	2	787	647	425
Subject	Fiscal Year	A	B	C	P/CR	D	F	W	NC	Census	Retain	Success
AST	FY08	22%	16%	17%	0%	5%	20%	19%	0%		80%	55%
AST	FY09	20%	15%	18%	0%	9%	18%	21%	0%		79%	52%
AST	FY10	23%	16%	19%	0%	8%	18%	16%	0%		84%	58%
AST	3 Year Avg	21%	15%	18%	0%	8%	19%	19%	0%		81%	55%
AST	FY11	20%	11%	23%	0%	11%	17%	18%	0%		82%	54%
College	3 Year Avg	33%	19%	12%	5%	5%	10%	15%	2%		85%	68%
College	FY11	33%	20%	13%	3%	5%	10%	14%	2%		86%	70%

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E3: Retention and Success Rates

This chart illustrates the retention and success rates of students who were counted at census. Each measure has four bars. The first bar represents the program's prior three year average percent. The second bar shows last year's (FY11) percent. The third and fourth bars represent the overall college percents.

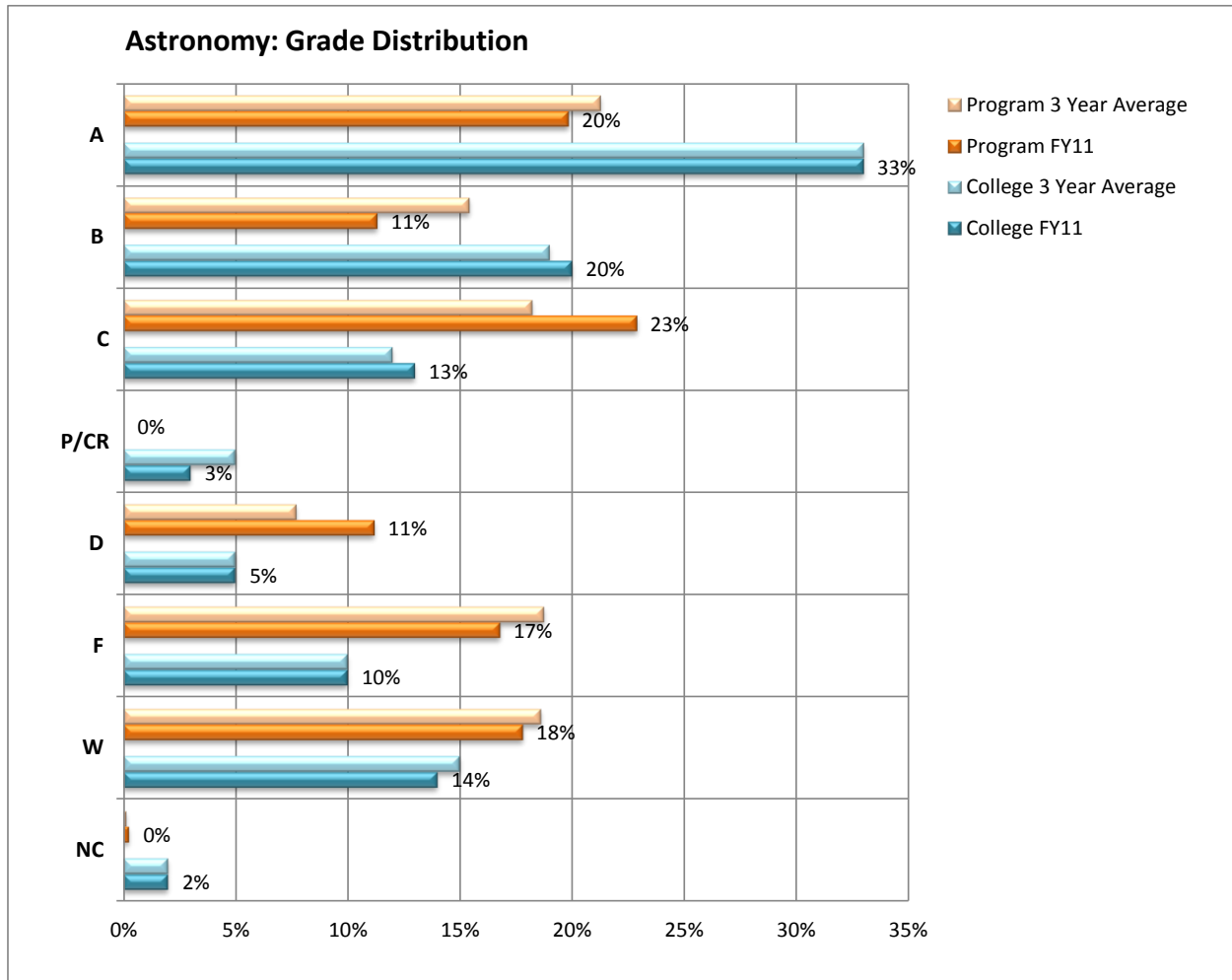


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E4: Grade Distribution

This chart illustrates the program's distribution of grades (by subject). Each grade has four bars. The first bar represents the program's prior three year average percent of grades. The second bar shows last year's (FY11) grade distribution percents. The third and fourth bars represent the overall college distribution percents.



E5: Student Success Detail Report

The program student success detail information is available in *Appendix C – Program Review Student Success Report*. This report is a PDF document and is searchable. The student success information was extracted from the District's Banner Student System. The student success information includes all information associated with the program's subject codes. The *Program Review Student Success Report* is sorted by subject code (alphabetical order) and includes the following sections: comparative summary and course detail by term. The following table defines the terminology.

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E6: Interpretation of Program Retention, Student Success, and Grade Distribution

Retention

Astronomy has a FY11 82% Retention versus 86% for the College, and FY11 54% Success versus 70% for the College. AST is a science GE that requires substantial technical reading and memorization of astronomical scientific terminology. Students with limited science background and vocabulary find it challenging. This leads to lower Retention and Success rates relative to the general population averages of the College.

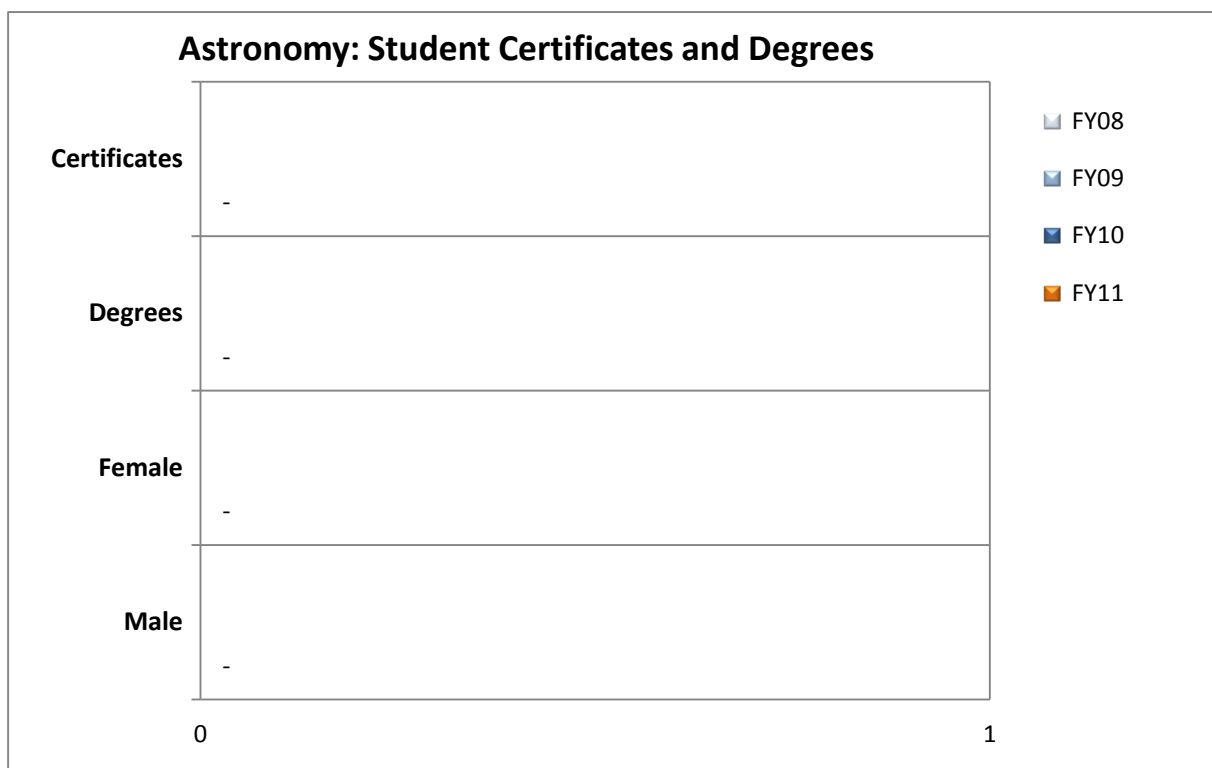
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F1: Program Completion – Student Awards

This table shows the number of students who completed a program certificate or degree during the fiscal year. Gender distribution is included. The following chart illustrates this information.

Program	FY	Certificates	Degrees	Female	Male
-	FY08	-	-	-	-
-	FY09	-	-	-	-
-	FY10	-	-	-	-
-	FY11	-	-	-	-
Total Awards in 4 Years		-	-	-	-



F2: Interpretation of the Program Completion Information

No Certificates, Degrees are awarded in this Program

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G1: Student Demographics Summary Tables

This table shows the program and college census enrollments for each demographic category. It also shows the average age of the students. The program FY11 results can be compared to its prior three year average, the college FY11 results, and the college prior three year average.

Subject	FY	Hispanic	White	Asian	Afr Am	Pac Isl	Filipino	Nat Am	Other	Female	Male	Other	Avg Age
AST	FY08	193	312	24	23	4	15	11	62	319	322	3	27
AST	FY09	280	377	13	35	8	18	16	72	394	420	5	25
AST	FY10	290	358	21	27	2	16	13	69	367	425	4	23
AST	3 Year Avg	254	349	19	28	5	16	13	68	360	389	4	25
AST	FY11	342	314	19	27	10	16	15	44	388	398	1	23
College	3 Year Avg	11,806	11,169	988	1,005	217	827	403	2,302	15,888	12,694	134	27
College	FY11	13,034	10,566	977	1,040	196	886	402	1,688	15,734	13,014	40	24

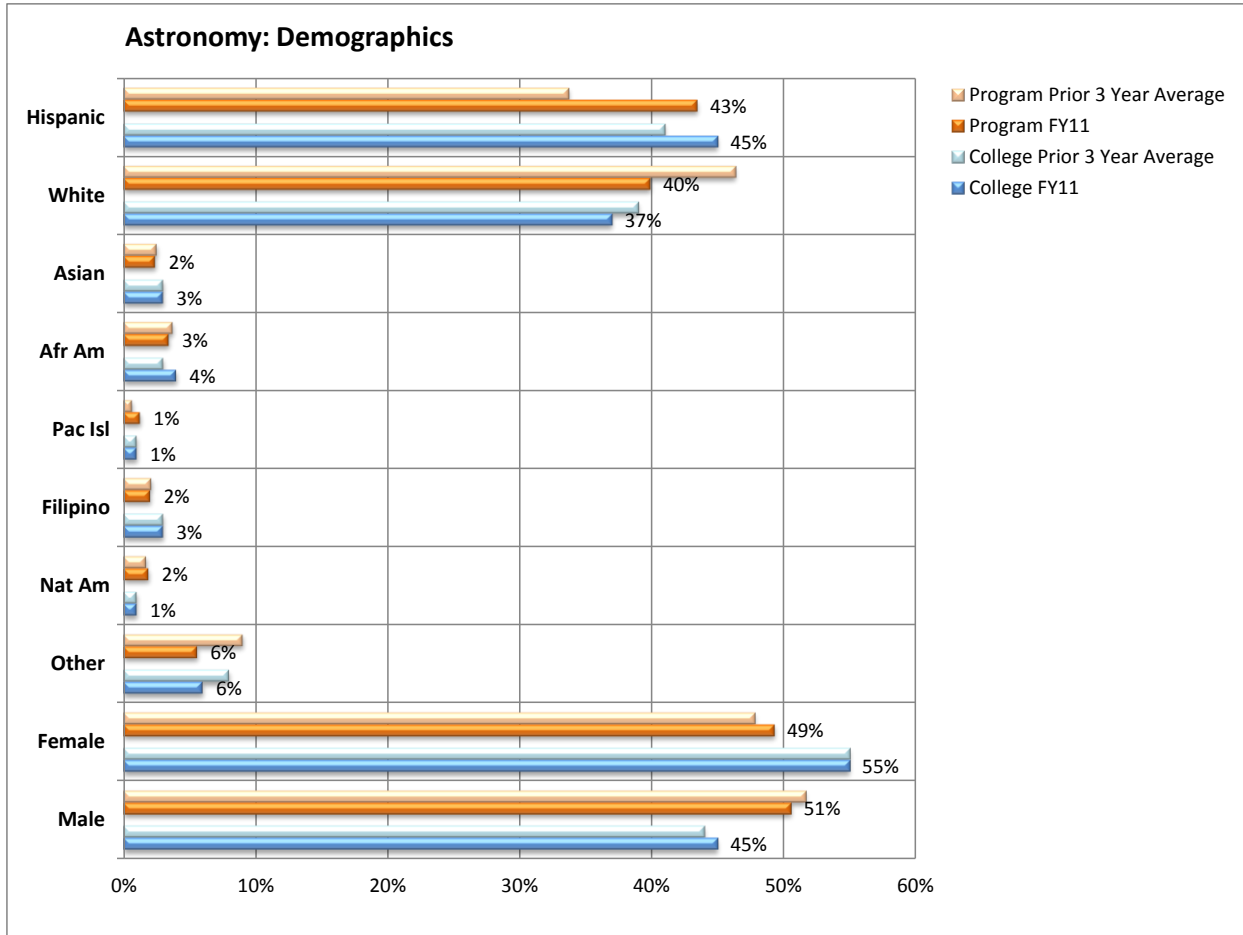
This table shows the program and college percentage of census enrollments for each demographic category.

Subject	FY	Hispanic	White	Asian	Afr Am	Pac Isl	Filipino	Nat Am	Other	Female	Male	Other	Avg Age
AST	FY08	30%	48%	4%	4%	1%	2%	2%	10%	50%	50%	0%	27
AST	FY09	34%	46%	2%	4%	1%	2%	2%	9%	48%	51%	1%	25
AST	FY10	36%	45%	3%	3%	0%	2%	2%	9%	46%	53%	1%	23
AST	3 Year Avg	34%	46%	3%	4%	1%	2%	2%	9%	48%	52%	1%	25
AST	FY11	43%	40%	2%	3%	1%	2%	2%	6%	49%	51%	0%	23
College	3 Year Avg	41%	39%	3%	3%	1%	3%	1%	8%	55%	44%	0%	27
College	FY11	45%	37%	3%	4%	1%	3%	1%	6%	55%	45%	0%	24

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G2: Student Demographics Chart

This chart illustrates the program's percentages of students by ethnic group. . Each group has four bars. The first bar represents the program's prior three year percent. The second bar shows last year's (FY11) percent. The third and fourth bars represent the overall college percents.



G3: Student Demographics Detail Report

The program student success detail information is available in *Appendix D – Program Review Student Demographics Report*. This report is a PDF document and is searchable. The student success information was extracted from the District's Banner Student System. The student demographic information includes all information associated with the program's subject codes. The *Program Review Student Demographics Report* is sorted by subject code (alphabetical order) and includes the following sections: comparative summary by year, and detail demographics by term and course.

G4: Interpretation of the Program Demographic Information

Astronomy student demographics and gender distribution mirror those of the College with a slight bias towards male students versus female students. This is unremarkable considering the subject discipline.

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4. Performance Assessment

A1: Program-Level Student Learning Outcomes

Program-Level Student Learning Outcome 1	Performance Indicators
1. Describe the evolution of models of the universe based on early and the most recent astronomical observations.	Performance on 4-7exams throughout the semester.
Operating Information	
The performance goal was not achieved. Exam results from individual students were inconsistent across the semester	
Analysis – Assessment	
1. Revise content of assignments/activities to promote higher competency such as classroom student verbalization, possible use of Clickers, tracking completion of reading assignments, and pop quizzes. 2. Encourage regular out-of-classroom cohort study groups. 3. Develop internet reading and astronomy video websites to augment textbook reading 3. Use a more appropriate text specifically written for the AST V01 section taught online	

Program-Level Student Learning Outcome 2	Performance Indicators
2. Express how astronomical concepts and understanding are derived from observation.	Performance on 4-7exams throughout the semester.
Operating Information	
SLO data not yet collected	
Analysis – Assessment	
SLO data needs to be collected	

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Program-Level Student Learning Outcome 3	Performance Indicators
Employ appropriate vocabulary to describe astronomical observations	Performance on 4-7exams throughout the semester.
Operating Information	
SLO data needs to be collected and evaluated	
Analysis – Assessment	
SLO data needs to be collected and evaluated	

Program-Level Student Learning Outcome 4	Performance Indicators
3. Show how well-understood physical laws can be applied to interpret and explain astronomical observations.	Performance on 4-7exams throughout the semester.

Operating Information	
SLO data needs to be collected and evaluated	
Analysis – Assessment	
SLO data needs to be collected and evaluated	

Program-Level Student Learning Outcome 5	Performance Indicators
4. Analyze and interpret observation data in terms of astronomical models.	Performance on 4-7exams throughout the semester.

Operating Information	
SLO data needs to be collected and evaluated	
Analysis – Assessment	
SLO data needs to be collected and evaluated	

4B: Student Success Outcomes

Student Success Outcome 1	Performance Indicators
The program will increase its retention rate from the average of the program's prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.	The program will increase the retention rate by 2% or more above the average of the program's retention rate for the prior three years.

Operating Information	
FY 11 Retention Rate = 82% versus 3yr average Retention Rate = 81%	
Analysis – Assessment	

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The Astronomy Program made positive strides towards the stated goal by a 1% increase

Student Success Outcome 2	Performance Indicators
<p>The program will increase its retention rate from the average of the college's prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.</p>	<p>The program will increase the retention rate by 2% or more above the average of the college retention rate for the prior three years.</p>
Operating Information	
FY 11 Retention Rate = 82% versus 3yr College average Retention Rate = 85%	
Analysis – Assessment	
<p>The Astronomy Program did not achieve the stated goal and underachieved by (-) 3%. We believe that this is due in part to the fact that 1 section is conducted in the online modality which, by nature, has a higher attrition rate.</p>	

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Student Success Outcome 3	Performance Indicators
The program will increase the student success rates from the average of the program's prior three-year success rates. The student success rate is the percentage of students at census who receive a grade of C or better.	The program will increase student success rate by 2% or more above the program's average student success rate for the prior three years.
Operating Information	
FY 11 Student Success Rate = 54% versus 3yr average Student Success Rate = 55%	
Analysis – Assessment	
The Astronomy Program Student Success Rate dropped by (-1%). The increase in enrollment over the last few years means that a wider diversity of students have been opting for the course to fulfill GE science. This places greater challenge to pedagogy to achieve higher Student Success Rates. Also, the online AST course needs to update its online book to optimize online learning.	

Student Success Outcome 4	Performance Indicators
The program will increase the student success rates from the average of the college's prior three-year success rates. The student success rate is the percentage of students at census who receive a grade of C or better.	The program student success will increase by 5% over the average of the college's student success rate for the prior three years.
Operating Information	
FY 11 Student Success Rate = 54% versus College 3yr average Student Success Rate = 68%	
Analysis – Assessment	
The Astronomy Program Student Success Rate underperforms the College Student Success Rate by (-14%). We attribute this to the science and technology nature of the course which is distinctly challenging when compared to the average College level course, the online teaching modality of 1 of the AST sections, and the need to select a more appropriate online textbook.	

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Student Success Outcome 5	Performance Indicators
Students will complete the program earning certificates and/or degrees.	Increase the number of students earning a certificate to a minimum of 20% of the number of students enrolled in second-year courses.
Operating Information	
This Program does not offer certificates	
Analysis – Assessment	
NA	

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C. Program Operating Outcomes

Program Operating Outcome 1	Performance Indicators
The program will maintain WSCH/FTEF above the 525 goal set by the district.	The program will exceed the efficiency goal of 525 set by the district by 2%.
Operating Information	
The Astronomy Program WSCH/FTEF numbers are 597 for AST lecture and 580 for lab yield a Program WSCH ratio of 595. This exceeds the Annual College WSCH Ratio of 525.	
Analysis – Assessment	
The Program’s enrollment and combination of live classroom and online modalities, and the high popularity of the AST labs have resulted in strong WSCH ratio scores. The Program plans to refine its pedagogy using the methods described in A-1 to increase retention and student success numbers.	

Program Operating Outcome 2	Performance Indicators
Inventory of instructional equipment is functional, current, and otherwise adequate to maintain a quality-learning environment. Inventory of all equipment over \$200 will be maintained and a replacement schedule will be developed. Service contracts for equipment over \$5000 will be budgeted if funds are available.	A current inventory of all equipment in the program will be maintained. Equipment having a value over \$5000 will have a service contract. A schedule for service life and replacement of outdated equipment will reflect the total cost of ownership.
Operating Information	
The instructional equipment inventory list is out of date and needs to be reviewed (3B1)	
Analysis – Assessment	

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Program Operating Outcome 3	Performance Indicators
Operating Information	
Analysis – Assessment	

Program Operating Outcome 4	Performance Indicators
Operating Information	
Analysis – Assessment	

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5. Findings

Finding 1:

Astronomy's Retention and Student Success percentages have remained about the same relative to its 3-year average scores, but they lag that of the College's. Astronomy has a FY11 82% Retention versus 86% for the College, and 54% Student Success versus 70% for the College. AST is a science GE that requires substantial technical reading and memorization of astronomical scientific terminology. It may be that there is a high enrollment of students with limited science background which leads to lower retention and success rates.

Finding 2

There are some concerns about student exam performance. Lower retention and student success shows up as inconsistent exam results throughout the semester. This finding appears in both live lecture as well as online sections.

Finding 3

Finding 4

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6. Initiatives

Initiative Provide e book in a format that is compatible with ipad, Kindle and iphone.

Initiative ID AST 00

Links to Finding 1

E-1 to E-6

One section of AST V01 is taught online. The current textbook is not particularly effective in online teaching and communication such as ipads, Kindle, and smart phones. The course will seek an AST e-book better suited to accommodate various online learning devices.

Benefits:

The benefit is that this will allow distance-learning students easier access to online resource

Request for Resources None

Funding Sources

No new resources are required (use existing resources)	X
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	
Requires computer equipment funds (hardware and software)	
Requires college equipment funds (other than computer related)	
Requires college facilities funds	
Requires other resources (grants, etc.)	

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Initiative

Instigate additional methods of pedagogy to improve exam scores, student retention, and student success

Initiative ID AST 01

Links to Finding

E-1 to E-6

The Astronomy Program will investigate and implement addition methods of pedagogy to improve overall student performance such but limited to:

1. Utilization of classroom Clickers
2. Increased emphasis on Instructor/student tutoring
3. Organizing cohort study groups
4. Use of online learning tools and website to communicate the subject matter to a broader audience of students

Benefits

1. Classroom Clickers will allow the Instructor to assess classroom learning in real-time
2. Tutoring will help personalize student learning needs
3. Cohort study groups will continue the learning experience outside of the live classroom or online website
4. Broader source of online learning resources will allow more students to interact with the core material through different venues.

Request for Resources

Purchase of a set of classroom Clickers

Funding Sources

Please check one or more of the following funding sources.

No new resources are required (use existing resources)	
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	
Requires computer equipment funds (hardware and software)	
Requires college equipment funds (other than computer related)	X
Requires college facilities funds	
Requires other resources (grants, etc.)	

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Initiative

Initiative ID

Links to Finding 3

Benefits

Request for Resources

Funding Sources

No new resources are required (use existing resources)	
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	
Requires computer equipment funds (hardware and software))	
Requires college equipment funds (other than computer related)	
Requires college facilities funds	
Requires other resources (grants, etc.)	

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Initiative

Initiative ID

Links to Finding 4

Benefits

Request for Resources

Funding Sources

No new resources are required (use existing resources)	
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	
Requires computer equipment funds (hardware and software)	
Requires college equipment funds (other than computer related)	
Requires college facilities funds	
Requires other resources (grants, etc.)	

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6A: Initiatives Priority Spreadsheet

The following blank tables represent Excel spreadsheets and will be substituted with a copy of the completed Excel spreadsheets.

Personnel –Faculty Requests

Other	Program	Program Priority (0, 1, 2, 3...)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost	No New Resources Requested	General Fund	Other
1												
2												
3												
4												
5												

Personnel – Other Requests

Personnel - Other	Program	Program Priority (0, 1, 2, 3...)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost	No New Resources Requested	New General Funds	Other
1												
2												
3												
4												
5												

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Computer Equipment and Software

Equipment - Computer Related	Program	Program Priority (0, 1, 2, 3...)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost	No New Resources Requested	Technology Fund	Other
1												
2												
3												
4												
5												

Other Equipment Requests

Equipment	Program	Program Priority (0, 1, 2, 3...)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost	No New Resources Requested	Equipment Fund	Other
1												
2												
3												
4												
5												

Facilities Requests

Facilities	Program	Program Priority (0, 1, 2, 3...)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost	No New Resources Requested	Facilities Fund	Other
1												
2												
3												
4												
5												

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Other Resource Requests

Other Resources	Program	Program Priority (0, 1, 2, 3...)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost	No New Resources Requested	General Fund	Other
1												
2												
3												
4												
5												

6B: Program Level Initiative Prioritization

All initiatives will first be prioritized by the program staff. If the initiative can be completed by the program staff and requires no new resources, then the initiative should be given a priority 0 (multiple priority 0 initiatives are allowed). All other initiatives should be given a priority number starting with 1 (only one 1, one 2, etc.).

6C: Division Level Initiative Prioritization

The program initiatives within a division will be consolidated into division spreadsheets. The dean may include additional division-wide initiatives. All initiatives (excluding the '0' program priorities) will then be prioritized using the following priority levels:

- R:** Required – mandated or unavoidable needs (litigation, contracts, unsafe to operate conditions, etc.).
- H:** High – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)
- M:** Medium – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)
- L:** Low – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)

6D: Committee Level Initiative Prioritization

The division's spreadsheets will be prioritized by the appropriate college-wide committees (staffing, technology, equipment, facilities) using the following priority levels.

- R:** Required – mandated or unavoidable needs (litigation, contracts, unsafe to operate conditions, etc.).
- H:** High – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)
- M:** Medium – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)
- L:** Low – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)

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6E: College Level Initiative Prioritization

Dean's will present the consolidated prioritized initiatives to the College Planning Council. The College Planning Council will then prioritize the initiatives using the following priority levels.

R: Required – mandated or unavoidable needs (litigation, contracts, unsafe to operate conditions, etc.).

H: High – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)

M: Medium – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)

L: Low – approximately 1/3 of the total division's initiatives by resource category (personnel, equipment, etc.)

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7A: Appeals

After the program review process is complete, your program has the right to appeal the ranking of initiatives.

If you choose to appeal, please complete the form that explains and supports your position. The appeal will be handled at the next higher level of the program review process.

7B: Process Assessment

In this first year of program review using the new format, programs will be establishing performance indicators (goals) for analysis next year. Program review will take place annually, but until programs have been through an entire annual cycle, they cannot completely assess the process. However, your input is very important to us as we strive to improve, and your initial comments on this new process are encouraged.