HSU Academic Program Criteria
Academic Program in Computer Information Systems

I. The Vision for Humboldt State University (Limit: 2 pages) [15%]

Describe up to 5 curricular or co-curricular features of the program that are consistent with the Vision of HSU, and indicate which aspect(s) of the Vision align with that particular feature. Please provide sufficient information such that an individual unfamiliar with your program will clearly understand the feature's relevance.

Introduction: Computer Information Systems Defined

Computer Information Systems, often alternately named Management Information Systems, is dedicated to the study and investigation of generalized computer applications. For example, a banking system or an inventory control are "information systems". This entails the areas of planning, conception, design, development, implementation, testing, validation, evaluation and management of computer applications to solve a broad range of information technology problems related to the business world. Computer applications for general businesses functions include such things as: payroll, control, accounting, report management, data bases, etc.

Feature #1: Information Management

Humboldt State University will be the campus of choice for individuals who seek above all else to improve the human condition and our environment.

The above introductory statement includes a key area, planning, conception, design, development, implementation, testing, validation, evaluation and management of computer applications to solve a broad range of information technology problems related to the business world, that brings the goal of improving the human condition – and consequently the environment – to the center of student application of principles in computer information systems. All majors participate in a capstone course on information management, and they also have multiple opportunities for additional applications of software to help business people and managers make more informed decisions that effect the lives of customers and employees.

Feature #2: A Relevant and Responsive Curriculum

We will be stewards of learning to make a positive difference.

The program curriculum requires students to take 5 computing "electives" over their course of study. This feature allows the faculty to keep current in a quickly-changing technological landscape, and to offer relevant and timely topics courses in the programs. Recent offerings include study of newer versions of unix, robotics, networking, security, and embedded systems. The program has recently benefited from university support for the necessary infrastructure to deliver a responsive curriculum, including a new internet technology laboratory and a refurbished computing lab shared with mathematics.

Feature #3: Expanding Diversity

We will commit to increasing our diversity of people and perspectives.

We will be exemplary partners with our communities, including tribal nations.

The Computing Science Faculty, let by Professor Amoussou, were partners in creating the Scientific Leadership Scholars (SLS) Program that is helping to diversify the computer science major. There are currently 5 students in our major from this program. In addition, the faculty (Amoussou, Burroughs, and Tuttle) continue to work with local tribal nations to engage their own high school and college students to build capacity within those communities for information management through various technological tools.

II. Demand (Limit: 1.5 pages per option, not including tables) [20%]

A. Internal demand for the degree program and courses in the degree program

1. Headcount Data

Major Academic Year (Fall/Spring) Average Headcount Summary Majors_overview_CIS report generated: 16-APR-08								
Major Code	**Major Description**	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**	**AY 07/08**
CIS	Computer Information Systems	171	162	134	103	83	78	56	47
Total		**171**	**162**	**134**	**103**	**83**	**78**	**56**	**47**

Second Majors by Academic Year (exclusive of primary majors) Majors_overview_CIS report generated: 16-APR-08								
Major Code	**Major Description**	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**	**AY 07/08**
CIS	Computer Information Systems	5	4	5	3	2	0	1	1
Total		**5**	**4**	**5**	**3**	**2**	**0**	**1**	**1**

Minors enrolled AY Average in Computer Information Systems minors_enrolled_CIS report generated: 06-MAR-08								
CLASS	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**	**AY 07/08**
Frosh	1	0	2	0	0	0	0	0
Soph	3	2	1	2	1	1	0	0
Jr	10	4	5	2	2	2	1	0
Sr	35	24	11	16	15	13	7	4
Grad	0	1	1	0	0	0	0	0
	49	**31**	**20**	**19**	**18**	**15**	**8**	**4**

Majors by Sex and Ethnicity Majors_overview_CIS report generated: 16-APR-08									
SEX	**Ethnicity**	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**	**AY 07/08**
Female	Asian	3	3	0	1	0	0	1	2
	Black	0	0	2	1	1	1	0	1
	Hispanic	6	6	2	2	1	0	0	2
	Native Amer	1	1	0	0	0	0	0	0
	Pacific Is	1	0	1	1	1	0	0	0
	White	21	21	18	16	10	4	5	3
	Other	2	1	1	2	1	1	1	1
	Unknown	5	3	1	1	0	2	1	1
sum		**38**	**34**	**24**	**22**	**13**	**8**	**7**	**8**
Male	Asian	7	8	8	10	6	7	4	3
	Black	5	6	4	2	3	3	4	3
	Hispanic	7	8	10	10	9	9	4	4
	Native Amer	3	3	3	0	0	1	1	0
	Pacific Is	1	0	0	0	0	0	0	0
	White	89	76	65	43	41	38	22	18
	Other	3	4	3	5	3	4	3	6
	Unknown	19	25	20	13	10	10	11	6
sum		**133**	**128**	**111**	**82**	**70**	**71**	**49**	**39**

Computer Information Systems (with options) Degrees Awarded (incl. primary and second majors) degrees_awarded_B_CIS report generated: 25-JUN-08								
MAJOR	**AY 99/00**	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**
Computer Information Systems	25	26	31	34	12	18	12	13
sum	**25**	**26**	**31**	**34**	**12**	**18**	**12**	**13**

Computer Information Systems Degrees Awarded by Sex and Ethnicity (incl. primary and second majors) degrees_awarded_B_CIS report generated: 25-JUN-08									
SEX	**Ethnicity**	**AY 99/00**	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**
Female	Asian	1	3	2	0	0	0	0	0
	Black	1	0	0	0	0	0	0	0
	Hispanic	0	0	2	2	0	0	0	0
	White	4	3	2	5	2	4	0	1
	Unknown	0	0	2	1	0	0	0	0
sum		**6**	**6**	**8**	**8**	**2**	**4**	**0**	**1**
Male	Asian	1	0	1	0	2	0	0	1
	Black	0	0	0	1	0	1	0	0
	Hispanic	1	1	1	1	0	0	2	2
	Native Amer	1	2	0	0	0	0	0	0
	White	13	15	17	22	3	8	9	3
	Other	1	0	0	0	0	1	0	0
	Unknown	2	2	4	2	5	4	1	6
sum		**19**	**20**	**23**	**26**	**10**	**14**	**12**	**12**

Minors Awarded by Year in Computer Information Systems minors_awarded_CIS report generated: 25-JUN-08								
MINOR	**AY 99/00**	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**
Computer Information Systems	22	27	29	17	9	11	3	7

2. FTES by Course Code

FTES taken in Computer Information Systems classes by Majors (AY 02/03 - AY 07/08) course_ftes_smry_CIS report generated: 30-JUN-08								
SUBJ	**Course level**	**Student Major**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**	**AY 07/08**
CIS	Lower-div	Computer Information Systems	19.6	16.2	13.4	13.4	8.2	7.7
		Undeclared	5.0	5.2	4.7	2.7	3.0	3.1
		Industrial Technology	.7	.9	1.1	1.3	1.0	1.6
		Mathematics	1.2	1.7	2.2	2.0	1.7	1.4
		Computer Science	1.2	2.6	2.7	2.9	3.9	1.4
	Sub-total		**50.1**	**46.2**	**46.4**	**38.9**	**35.5**	**29.0**

FTES taken in Computer Information Systems classes by Majors (AY 02/03 - AY 07/08) course_ftes_smry_CIS report generated: 30-JUN-08								
SUBJ	**Course level**	**Student Major**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**	**AY 07/08**
	Upper-div	Computer Information Systems	30.3	23.0	18.5	18.6	14.8	10.6
		Computer Science	1.2	2.2	4.9	1.9	3.5	5.3
		Business Administration	4.2	1.1	1.5	1.0	2.1	2.0
		Psychology	1.6	1.0	.7	1.2	.6	1.1
		Art	3.2	2.5	1.8	1.3	.6	1.0
	Sub-total		**60.6**	**46.9**	**39.5**	**36.3**	**30.1**	**32.6**
Total			**110.7**	**93.1**	**85.8**	**75.2**	**65.6**	**61.5**

FTES taken in Computer Information Systems classes by Majors (AY 02/03 - AY 07/08) course_ftes_smry_CIS report generated: 30-JUN-08								
SUBJ	**Course level**	**Student Major**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**	**AY 07/08**
CIS	All Levels	Computer Information Systems	49.9	39.2	32.0	32.0	23.0	18.3
		Computer Science	2.4	4.7	7.6	4.8	7.4	6.7
		Undeclared	7.2	6.6	6.0	3.9	3.3	3.8
		Business Administration	6.4	2.6	3.0	2.3	3.7	3.3
		Industrial Technology	.9	1.3	1.5	1.5	1.2	2.3
Total			**110.7**	**93.1**	**85.8**	**75.2**	**65.6**	**61.5**

3. Service to other HSU program/options
Document other HSU programs/options (including, GE) with required coursework from your program

Other HSU program/option name	Courses required List course number and units	Restricted elective courses List number and units
Geographic Information Systems		CIS 230 (3), CIS 240 (3), CIS 315 (3), CIS 318 (3), CIS 310 (3)
Mathematics		CIS 130 (3) and 230 (3)

4. Comment on the internal demand **FOR EACH OPTION** of the Major. Explain any significant changes in internal program demand over past 7 years. Provide any additional relevant information of internal demand.

The major and minor programs in Computer Information Systems fell victim to the dot-com bust of the late 1990's and the early 2000's. Programs all across the country experienced drops in majors between 20% and 80% during a span of a few years. HSU's program might have

recovered somewhat over the past few years, but some students who would have normally come into the CIS program have chosen the Computer Science Program instead. Thus, the drop in numbers of majors – from over 170 to around 50, might have been less severe had the department stayed with a single degree program.

Enrollments from 2005-2007 have shown a slower decline, signaling a bottom to this trend.

B. External demand for "graduates" from the program

> Imagine you are answering a parent's question about job prospects and the demand for graduates of your program/option. Describe evidence of external demand for this program. Evidence may be cited from one of the following sources: the State of California http://www.labormarketinfo.edd.ca.gov/, the US Department of Labor http://www.bls.gov/OCO/, the National Association of Colleges and Employers, http://naceweb.org. Evidence may be cited from an additional source from, for example, a professional society relevant to your discipline.

From the US Department of Labor's 2008-2009 Occupational Outlook (DLOO), "Employment in professional, scientific, and technical services will grow by 28.8 percent and add 2.1 million new jobs by 2016. Employment in computer systems design and related services will grow by 38.3 percent and add nearly one-fourth of all new jobs in professional, scientific, and technical services. Employment growth will be driven by the increasing reliance of businesses on information technology and the continuing importance of maintaining system and network security….Demand for these services will be spurred by the increased use of new technology and computer software and the growing complexity of business."

Because the CIS degree program has an emphasis on applications of computing and has particular strengths in programming, database, and telecommunications and networking, students are prepared for multiple entry points in the workforce. Two large areas for ours students are in database administration, projected to to grow by 37% from 2006 to 2016 (DLOO), much faster than the average for all occupations, and network and computer systems administration, projected to grow by 27% from 2006 to 2016 (DLOO), much faster than the average for all occupations.

Again, from the DLOO report on these areas of opportunity, "Job prospects should be best for college graduates who possess the latest technological skills, particularly graduates who

have supplemented their formal education with relevant work experience." Expected earnings are generally above average or well above average.

III. Program Quality (Limit: 6 pages, not including tables) [30%]

A. Students

1. For undergraduate programs

Computer Information Systems (with options) Mean GWPE Scores (incl. primary and second majors) degrees_awarded_B_CIS report generated: 25-JUN-08								
MAJOR	**AY 99/00**	**AY 00/01**	**AY 01/02**	**AY 02/03**	**AY 03/04**	**AY 04/05**	**AY 05/06**	**AY 06/07**
Computer Information Systems	15.9	16.4	16.3	16.2	16.0	16.9	16.3	16.6
Overall	15.9	16.4	16.3	16.2	16.0	16.9	16.3	16.6

Provide evidence indicative of program quality related to student learning (e.g., patterns of student achievements in discipline-specific contexts such as special honors or awards, publications, presentations; passing rates on professional examinations; proportion of students who are admitted to graduate school and/or employed in a disciplinary field; and so on – as appropriate for your discipline).

We have anecdotal reports that the vast majority of our graduates are working successfully in computing and related technical fields. In fact, one of the challenges for students in the CIS field is to keep from jumping too early to a full-time position before they complete the degree program. Our students' skills are in demand, and internships can turn into jobs in a hurry. One piece of evidence

We do not have comprehensive data on the success of our graduates.

B. Faculty

1. Provide evidence of teaching effectiveness and commitment to continuous improvement of teaching. Include, for example, engagement in professional development for teaching (including around campus themes on learning outcomes and diversity, and on accessibility training), program approaches to ensure quality, and/or recognitions, honors, and awards for excellence in the classroom as appropriate for your program.

The faculty has managed a very balanced approach to carry out their commitment to the continuous improvement of teaching and of the curriculum. Their activity includes professional development in campus efforts on diversity and accessibility, and discipline-specific workshops and symposia to improve teaching, learning, and retention in the discipline. These latter efforts have a significant technical component to them in computer science, since improving student learning often involves faculty use of new applications, programming languages, and security schemes and protocols – to name a few.

Here are some of examples of recent faculty engagement in this area of continuous improvement of teaching:

Tuttle, Burgess, Dixon: Each faculty is a regular and active participant in regional and national organizations which focus on effective teaching in computing. In particular, these faculty are active in the Consortium for Computing Sciences in Colleges - Northwest (CCSC-NW) Conference and the Association for Computing Machinery (ACM) Special Interest Group in Computer Science Education (SIGCSE) technical symposium.

Tuttle, Burgess: These faculty regularly attend campus professional development opportunities in accessibility, learning outcomes, writing across the curriculum, and WASC theme 2 (Inclusive Academic Excellence.

Tuttle, Dixon, Burroughs, Amoussou: Over the past 2 years these faculty have all attended workshops in a specific technical area for improving instruction. Tuttle attended a workshop on TeachScheme/ReachJava, Dixon attended a workshop on Python, Burroughs attended workshops on computer security, and Amoussou organized a workshop on the curriculum and pedagogy of the science of design.

Amoussou: Over the past 3-5 years professor Amoussou participated in several national and international symposia on recruitment, retention, and effective curriculum and pedagogy for underrepresented groups in computing fields.

Campbell: Professor Campbell has participated in 12 significant distance-learning educator trainings since 2005. This work has supported his creation of web-based resources for his courses and for the department.

2. Evidence of faculty engagement in scholarship/creative activities and service. (Express as a percentage of full-time or FERP faculty members **affiliated with the program**. For example, if 9 of 10 faculty affiliated with your program gave a paper at

a professional meeting in 04/05, then enter 9/10 = 90%.) This table is to be completed by the department.

The program faculty include Amoussou, Burgess, Burroughs, Campbell, Dixon, and Tuttle.

Scholarship/Creative Activities/Service	05/06	06/07	07/08
At least one peer-reviewed publication or creative product	67	33	50
At least one funded grant or contract related to scholarship	17	17	33
Invited participant or leader of workshops, expert panels, or task forces	50	50	83
At least one presentation (paper, poster, exhibition, etc.) given at a professional society meeting	50	17	17
Professional service activities at a regional or national level	83	67	50
Service on at least one university or college-level committee (at least 1 hour/wk avg.)	67	67	67

3. Provide explanations of the data above and/or descriptions of the patterns of faculty engagement in scholarly and/or creative activities and service as appropriate for your program.

A main area of inquiry for the faculty in the program is the scholarship of teaching and learning and of currency in the curriculum. The pace of technological advances in computing continues at a high rate. To stay current, faculty learn new applications, languages, and protocols so that the programs stay relevant for students.

A second area of inquiry is diversity in the fields of CIS and CS. Two projects which have current funding (Amoussou) are *Broadening Participation in Computing Demonstration Project: Coalition for American Indians in Computing (CAIC), and Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) - Scientific Leadership Scholars Program (SLSP).*

A third are of inquiry is in the pedagogy of the Science of Design. One project – already in its second generation – is *Research Experience for Undergraduates: Role Modeling in Sciences – Science of Design*, directed by Professor Amoussou.

4. Provide evidence for faculty mentoring of students. Include, for example, approaches to advising, directed study or research, and/or clubs or student professional chapters that involve faculty mentorship.

All faculty advise in the program. Amoussou is a faculty mentor for the international program and for the SLS program Dixon is a mentor for the exchange students from Germany and France. There has been a computer science club with several years of activity. The current club sponsor is Tuttle. Students are also recruited for and encouraged to participate in the annual programming context. Dixon is the faculty advisor for this group.

5. Other evidence of quality indicators related to faculty that may not be listed elsewhere, including, for example, faculty diversity within the program.

Half of the computing science faculty are representatives from groups (women and minorities) who have not been traditionally well represented in departments of computing science.

C. Curriculum (differentiate by option, if appropriate)

1. Writing and oral communication learning outcomes
   Describe how written and oral communication skills are included in your program.

Students in the CIS program have semester-long projects in a pair of capstone courses: CIS 450 (Information Resource Management) and CIS 492 (Systems Design and Implementation). Students engage in written and spoken presentation of their ideas, and are evaluated on their ability to communicate in both forms.

In addition, writing and documenting computer programs occurs and is evaluated throughout the curriculum, especially in CIS 130, 230, 235, 240, 315, 318, and 350.

2. Assessment
   [Data on program progress with assessment tasks will be provided from the Faculty Associate for Assessment]
   Provide 2 examples of how you have used results of assessment of your program's student learning outcomes to adapt, enhance, or affirm your program's curriculum.

The computing science department has not performed an assessment of student learning outcomes to date. Our efforts have been on curricular alignment with national standards published by the Association for Computing Machinery (ACM) and on learning outcomes in the GE offering of CIS 100. In the 2005-2006 academic year, there was extensive work done to

update CIS 100 to reflect the critical thinking guidelines and align student learning outcomes in this area with student learning outcomes in the course. CIS 100 has since been regranted status as a critical thinking course at HSU.

3. Accreditation (if applicable)
   If the program is accredited, describe the need for this accreditation and its impact on the quality and composition of the curriculum of the program.

Not applicable.

4. Relevance and innovation
   Provide evidence through examples that demonstrate a curriculum that is relevant, innovative, forward looking, responsive to changing trends, and equips students to function in a diverse, global context.

As mentioned in section I of this report, CIS students must include 5 restricted electives that are updated annually by the faculty to reflect emerging technologies and techniques in the field. This is

5. Interactions between graduate and undergraduate programs (if applicable)
   If this is a graduate program, what opportunities for undergraduates result (or are lost) by virtue of the graduate program.

Not applicable.

6. Program uniqueness
   If your program provides unique educational opportunities or course content that is found at few or no other CSU institutions, please describe this uniqueness.

Our program is unique in two ways: an emphasis on database design, implementation, and management, and an emphasis in programming.

The HSU CIS degree is unusually strong in the area of database-related topics, with separate junior-level courses not only in the expected area of database implementation and design, but also in having an entire second semester in database application programming. With senior-level courses in information resource management and a semester-long team database project, these students have a strong foundation for going into database administration.

Most CIS-type degrees have a strong business component, and are often housed in schools of business. HSU's program instead emphasizes programming, analysis, and design, so that one might view this degree as closer to computer science than it is to business management.

7. Opportunities for undergraduate scholarship/creative activities/service
   Estimate the percentage of your undergraduate majors that participate in scholarship/creative activities/professionally-related service, and provide some illustrative examples of such activities. Can students receive academic credit for these activities and have them counted toward undergraduate major requirements?

The principle vehicle for students to engage in applied scholarly and creative activities and service is the internship opportunities that are currently managed by Professor Campbell. One of the restricted electives that are encouraged in the program is CIS 482 (Internship). Our interns have worked for HSU's Courseware Development Center, various departments of Academic Computing, and Various Departments in Telecommunications and University Computing Services. Some of our internships have also been outside of the university, often in county or municipality management centers.

D. Affiliations/Equipment/Facilities/Environment

1. Affiliations
   Some academic programs are affiliated with on-campus or off-campus centers, units or institutes that bring important benefits to programs. For any such center/unit/institute, please provide (1) the name of such center/unit/institute, and very brief descriptions of (2) the purpose of the center/unit/institute, (3) the nature of your program's affiliation with the center/unit/institute, and (4) the benefits accruing to your program/major from your affiliation with this center/unit/institute. Units/centers/institutes may be public (HSU, CSU, local, state, federal) or private.

The program has been most strongly affiliated to HSU's now-defunct Courseware Development Center (CDC). Motivated by faculty in the Computing Science Department, the CDC became a main source of student internships and employment for both CS and CIS majors. A second important affiliation is with the various IT entities on campus, including telecommunications and academic computing. Several employees in these areas have either graduated from the department programs or have been instructors in the department when enrollments were higher.

2. Facilities and resources
   Provide a brief listing of your most important facilities, equipment and information/library resources, and describe the degree to which the current facilities, equipment and information/library resources affect program quality.

The critical facilities for the computer science department are the new dual-boot computer lab facility shared with the math department, and the recently renewed Internet Technology Lab which contains over $100,000 of donated equipment from the SYSCO Corporation. Both of these facilities are necessary to the vitality and quality of the program.

3. Unique local and regional environment
   Describe how the program takes advantage of the unique local or regional social, cultural and/or natural environment available to students and faculty at HSU. (Do not include items listed under D1.)

The HSU Computing Science Department, through the leadership of Professor Amoussou, was awarded a Broadening Participation in Computing grant called the Coalition for American Indians in Computing. National Science Foundation agreed that the HSU computing science department is unusually well-placed in reaching Native American students to consider a future in computing. This partnership with the tribes in our region is intended to provide high school and college age students with early opportunities in programming and applied computing.

IV. Investments, Revenues, and Efficiencies (Response Limit: 2 pages of narrative, not including tables) [20%]

A. Program Investments

1. Program Investment – Degree Requirements

Enter the total number of required course units (as listed in the catalog) for this academic program, and then the number of required course units for this academic program that are from the primary course code associated with your program. Provide a total for each option if appropriate.

Student Units

Total required Program SCUs	55	Required Program SCUs in the primary Course Code	45

Weighted Teaching Units (WTU's)

Total the number of WTUs required to teach 1 section of each of the required courses in the program. If there are lists of restricted electives (e.g., take 1 of the following 3 courses), then choose a representative course from the list. For required S-factor courses, estimate the typical number of WTU's assigned to a faculty member who teaches the course. Again, differentiate by option if appropriate.

Total Required Program WTUs	60.1	Required Program WTUs in the primary Course Code	49.8

2. Program Investments – by staff allocations.

Estimate the percent of departmental expenditures for that can be attributed to this academic program. Provide an explanation, as appropriate.

	Major Program
Staff FTE	30%

The computing science office was combined with the Math Department office. The current level of appointment is 2 FTE. The computing science portion of the staff is ¾ of one position. The traditional level of support was 1 full staff position.

3. Program investment – by Minimum Weighted Teaching Units required to offer coursework so students can make reasonable progress toward their degree.

Complete the table below using the definitions that follow. Include additional columns as needed.

Total WTU in Course Code	WTU for GE and service to other academic Programs	WTU for CIS
188.9	54.9	134

Total WTU in Course Code: Sum up the total number of WTU that were used to teach courses in the primary course code associated with your academic program **over the past two academic years**. Exclude remedial courses.

Service to GE and other Academic Programs: Enter the total number of WTU that were used **over the past 2 years** to meet service demands imposed by students outside the major. (In other word, if 8 sections of Egyptology 301 have been offered over the past 2 years, but if 2 sections over the past 2 years would have been sufficient for the Egyptology majors, then count 6 sections of Egyptology, and the associated WTU, in this category.)

WTU for Major Option (s): Sum up the non-service WTU for the set of courses in the course code associated with your program that you would need to offer **over a two year period** to accommodate progress toward degree for your program students.

4. Program Investments – Other annual costs.

Provide dollar estimates for other program costs by the following categories. Annualize periodic costs (equipment purchases or facilities upgrades) as necessary. Include an explanation, if appropriate. Do not include costs for commonly used items (smart classrooms, faculty workstations, etc.).

Category	**Estimated Cost**
Equipment (including maintenance)	$3500
Instructional Supplies	$5880
Temporary Help (graders, lab assistants, GA's, etc.)	$2200

5. Program Investments – accreditation [if applicable]

If this program is accredited, describe how this accreditation effects program costs.

Not applicable.

B. Gross Revenues

Revenue DEPARTMENTS COMPLETE THIS SECTION	05/06	06/07	07/08
Fundraising/donations	75	1250	1100
Extended Education	877	996	915
Student fees (CNRS lab fees – estimates)	5880	5580	5300
Instructionally Related Activities (IRA)	0	0	0
Instructionally-related grants	176558	369319	496932
Grants and contracts to P.I.s	13156	0	0
Other revenues	0	0	0

Provide an explanation for how these revenues support the academic program.

This table is identical to the one entered for the Computer Science program, reflecting the department as a whole. The majority of the revenues in this table go to supporting the work of Professor Amoussou on expanding opportunities for minority students in computing sciences programs. A smaller amount – less than the sum of the donations, extended education, and CNRS lab fees (since the lab fees are collected centrally and then expended through a college-wide proposal process), go to support instruction through copying costs, printing costs, software license renewals, and short-lived equipment such as supplies for a robotics course laboratory.

C. Efficiency

1. Efficiency – By SFR for course code

Academic Year Averages	Subject	**02/03**	**03/04**	**04/05**	**05/06**	**06/07**	**07/08**
SFR	CIS	14.92	15.58	15.69	13.29	14.21	14.73
FTEF	CIS	7.43	5.98	5.47	5.66	4.62	4.18

SFR SUMMARY	02/03	03/04	04/05	05/06	06/07	07/08
AHSS	20.36	22.05	21.94	20.61	21.19	22.91
CNRS	15.66	16.90	17.17	16.04	16.82	18.28

CPS	15.12	16.29	15.68	15.22	20.80	25.33
UNIVERSITY TOTALS	17.28	18.65	18.57	17.52	19.32	21.43

Explain any substantial changes in SFR. Also explain why this SFR differs from the college and/or university SFR. What efforts have been made over the past few years by the program to improve this measure of efficiency? Use the data under part IV.E. as appropriate.

Although the numbers of majors has decreased dramatically, the CIS program has offered fewer sections and worked to offer courses with less frequency so that the SFR would remain approximately at the same level. One limiting factor for efficiency is the nature of the discipline. Almost all CIS courses run as 2-hour lectures and 2-hour labs. Labs are restricted to 24 students. Thus, unless the number of majors calls for double-sized lectures with two computer labs, we will always be hard-pressed to raise efficiency much above 20 SFR.

2. Efficiency – Other views.

The Prioritization Task Force will examine the data given under section IV.A and B in terms of the overall production (e.g. number of majors, number of graduates) in the program. Please comment if appropriate.

The cost per graduate has risen significantly with the drop in the number of majors since the dot-com bust. However, when pressures from external demand are relieved through marketing of the unique program that we have here, we have every expectation that the efficiency of the program will improve dramatically.

D. Budget cut impacts

Indicate how your program has been affected by recent (since 2002-2003) budget cuts that have directly affected resources for your program (faculty, staff, operating expense) and course offerings (class size, reduced course offerings or options for the major.) Refer to the data included under section IV. E. or in the departmental report as appropriate.

The reduction in the number of majors in the program parallels the reduction in the number of courses and sections that are offered. Note that the average section enrollment (4th table in section E) are not significantly different from 6 or 7 years ago.

E. Additional Data

Course Offerings Profile in Computer Information Systems (AY 00/01 - AY 07/08) class_offerings_CIS report generated: 27-JUN-08								
	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Distinct Courses Enrolled	30	31	25	21	17	14	16	14
Sections Enrolled	77	76	55	42	38	31	35	25
Average Section Enrollment	20	17	18	18	20	21	17	17

Distinct Courses Enrolled in Computer Information Systems by Level (AY 00/01 - AY 07/08) class_offerings_CIS report generated: 27-JUN-08								
Course Level	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Lower-div	17	18	13	10	8	7	8	6
Upper-div	13	14	12	11	9	7	9	9
Total	**30**	**31**	**25**	**21**	**17**	**14**	**16**	**14**

Sections Enrolled in Computer Information Systems by Level (AY 00/01 - AY 07/08) class_offerings_CIS report generated: 27-JUN-08								
Course Level	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Lower-div	51	46	29	22	19	17	18	10
Upper-div	27	30	26	21	19	14	17	15
Total	**77**	**76**	**55**	**42**	**38**	**31**	**35**	**25**

Avg Section Enrollment in Computer Information Systems by Level (AY 00/01 - AY 07/08) class_offerings_CIS report generated: 27-JUN-08								
Course Level	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Lower-div	22	18	18	21	24	22	20	21
Upper-div	17	16	17	16	16	20	13	15
Total	**39**	**34**	**35**	**37**	**40**	**42**	**33**	**36**

FTES in Computer Information Systems by Course Level (AY 00/01 - AY 07/08) class_offerings_CIS report generated: 27-JUN-08								
Course Level	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Lower-div	107.9	80.5	50.1	46.2	46.4	38.9	35.5	29.0
Upper-div	65.5	63.8	60.6	46.9	39.5	36.3	30.1	32.6
Total	**173.5**	**144.3**	**110.7**	**93.1**	**85.8**	**75.2**	**65.6**	**61.5**

NOTE: In the above tables all class sections have 2 or more students enrolled. This is done to minimize the influence of independent student sections.
Distinct Courses count each distinct SUBJ/Course-number combination enrolled.
All figures are Fall/Spring term averages. Due to the rounding of average Academic Year counts, the various breakouts may not add to the exact same amounts.

Other Class Offering Breakouts

These examine independent study sections, and sections by different modes of instruction. The Lecture-only sections have only a C1 through C6 mode. The Lab/Activity-only sections have only a C7 through C-16 mode. Other modes and combinations contain the remaining modes or combinations of lecture and lab/activity modes.

Other Special breakouts in Computer Information Systems (AY 00/01 - AY 07/08)
class_offerings_CIS report generated: 27-JUN-08

	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Sections with 1 student enrolled	3	2	3	4	5	3	2	3
Lecture only sections	30	29	24	20	16	15	15	14
Lab/Activity only sections	28	28	23	19	16	15	16	9
Other modes and combinations	19	19	9	4	6	1	5	3

Service Courses

The following shows sections which are considered service for either General Education, CWT (Communication and Ways of Thinking), DCG (Diversity and Common Ground), or Institutions Requirements.

Service Course Sections Enrolled in Computer Information Systems (AY 00/01 - AY 07/08)
class_offerings_CIS report generated: 27-JUN-08

Course Level	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Lower-div	6	6	5	5	6	6	5	1
Upper-div	4	4	4	3	1	1	2	2

Service Course FTES in Computer Information Systems (AY 00/01 - AY 07/08)
class_offerings_CIS report generated: 27-JUN-08

Course Level	AY 00/01	AY 01/02	AY 02/03	AY 03/04	AY 04/05	AY 05/06	AY 06/07	AY 07/08
Lower-div	15.1	15.2	11.5	15.0	18.2	14.7	14.0	13.7
Upper-div	25.9	22.2	23.5	18.9	6.9	5.1	10.4	13.6

V. Potential (Please complete this section for each option. Limit: 2 pages per option) [15%]

A. Program capacity with existing resources:

1. What is your program's maximum capacity with current resources? Use two metrics to define "capacity": The number of graduates per year, and the number of FTES generated by courses that are unique to this option, per year.

(Completed by the department)	Graduates per year	FTES in the major option per year
Existing	8	61.5
Maximum capacity with existing resources	24	80

2. If your program is at maximum capacity, proceed to part B. If you have capacity to grow with existing resources, what steps have been taken to increase enrollment? What have been the effects of these steps, and what results are still anticipated?

We are on the verge of making a significant difference in our enrollment situation in the CIS program. For the past 2 years, the department, with support from the CNRS dean and extended education, have been developing Distance Education versions of our major course requirements with the intention of launching a degree completion program. The DE program is designed for working adults who have earned a 2-year degree in computer information systems or a similar certificate or degree program. By the end of 2007-2008, we will have piloted the first year of coursework in the program. Anticipated enrollment for the program is 25 - 50 students per year.

To realize this level of enrollment through distance education will require the university to commit to supporting an electronic infrastructure that will allow students to matriculate from a distance. The department is preparing a WASC proposal for substantive change in the CIS major delivery that will require this university commitment.

B. Opportunities for future growth or substantial curricular changes

1. What opportunity does the program have for future expansion? Provide evidence for your response.

There are two key opportunities for future expansion of the CIS program, both of which are related to existing capacities. The first opportunity is in **database administration**. Adding coursework in this area would build on our already strong program of database design,

programming, and implementation. The additional coursework would also allow for a program option and/or certificate that would serve community members as well as students from a variety of academic area for which information and data management has become an increasingly imported aspect of their work. Examples from the community might include businesses, government agencies, health organizations, and tribal governance. Examples from other academic programs include Geographic Information Systems, Geography, Business, Recreation Administration, and other management sciences. Moreover, database administration is an area with a projected rate of job growth of 37% over the next 10 years (US. Department of Labor).

The second opportunity is in the area of **computer security**. The CIS program already has an isolated network and CISCO equipment in the Internet Technology Lab. This is a perfect setting to establish a set of experiences that could either lead to a certificate or to a program option in security. As with the first opportunity, this is an area that would likely garner interest both from the community and from other majors on campus – perhaps from the same sample lists as in the previous paragraph.

2. Describe the curricular changes and/or staffing increases required to accomplish such an expansion?

Each of the opportunities described above can be addressed with their own 1-year course sequence. Initially the database management opportunity could be accomplished through hiring of part-time faculty coverage of lower division courses while other faculty (Tuttle, Amoussou) accomplish the development. To accomplish the expansion in computer security will require either significant professional development for current faculty, or (ideally) a new faculty member with expertise in this area.

C. Impact of augmented resources

Suppose that your program were ranked in a category that recommended augmentation of resources. What would be the impact of augmented resources? (Answer for a 10% augmentation and a 20% augmentation.)

10% Augmentation: Our answer here depends on the university's decision on Distance Education. If HSU commits to providing the infrastructure for sustained Distance Education at HSU, then a 10% augment could support the piloting of the second year of the CIS degree completion program (see section V.A.2), and additional coursework in DE supporting the program in subsequent years. If HSU does not make the necessary commitment to DE, then the

CIS department work develop courses for a database management certification program, as described in section V.B.1.

20% Augmentation: In addition to what was listed under the 10% augmentation, if the HSU decision on Distance Education was positive, then we would use the additional augmentation to start the database management certificate. If the HSU decision on Distance Education was negative, we would use the additional augmentation and associate part-time savings to search for a new faculty member with expertise in computer security.

D. Impact of reduced resources
Suppose that your program were ranked in a category that recommended reduction of resources. What would be the impact of reduced resources? (Answer for a 10% reduction and a 20% reduction.)

10% Reduction We would reduce the number of sections we offer in service and GE, in particular we would offer only 1 section of the service/GE courses per year (CIS 100, 309, 310), thus reducing our WTU expenditures by about 10%. Such a reduction would require that other units on campus meet the GE needs of HSU students.

20% Reduction This size of reduction might require that we redesign the lower-division component of the major so that both the CIS degree and the CS degree make use of a greater number of courses. In addition, we would be forced to abandon our efforts on distance education.

E. Impact of program elimination
Suppose that your program were recommended to be discontinued. What would be the impact of program elimination?

The CIS program is a unique, practical application computing science program that has the potential to serve the needs of local government agencies and business. Elimination of the program would eliminate that potential and force employers to seek technological education outside of the north coast.