

Task Force to Review Small and Interdisciplinary Degree Programs and Low Enrollment Courses

Final Report

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BACKGROUND

Reviewing the use of resources on campus as related to low enrollment courses, small programs, and support for interdisciplinary programs at the undergraduate and graduate level is important as a matter of good management, and is particularly critical in times of budget reductions. One recommendation from the 2002/2003 President's Advisory Committee on Budget and Planning was to review the efficiency and effectiveness of low enrollment courses and programs and the unique issues of organization, support, and funding for interdisciplinary programs.

A task force was formed in October 2003, by Vice President for Academic Affairs and Provost Allen. The task force first met on November 4, 2003, to study these issues in order to provide draft recommendations to the Provost by February 1, 2004.

Task Force Charge

This task force was charged by Dr. Allen to focus its work on both small programs and interdisciplinary programs as well as on low enrollment courses. The following questions were posed:

Key questions to be addressed for the low enrollment issue are:

- Should the university have a defined policy that specifies a minimum enrollment for undergraduate courses?
- Should the university have a defined policy that specifies a minimum enrollment for graduate courses?
- If there should be a policy, what should be the minimum for a course to be offered at the undergraduate level and what should be the minimum for a course to be offered at the graduate level?

Key questions to be addressed for the small programs (including interdisciplinary) issue are:

- What are the small programs (based on pre-determined criteria)?
- What criteria should be used to determine whether a small degree program should be retained or eliminated?
- Which of the programs should be continued, which ones should be considered for elimination, and which ones should be combined with other programs?

Key questions to be addressed for the interdisciplinary program issue are:

- How many interdisciplinary undergraduate and graduate programs exist at Iowa State?
- What has been the growth of these programs in terms of number of programs and students over the last ten years?
- What is the level of quality of these interdisciplinary graduate and undergraduate programs?
- What is the nature and level of the financial and in-kind support for their operation?

Procedures

The task force was appointed in late October and began meeting in November. At the initial meeting, the task force reviewed the charge and devised the following plan of action:

Gather data/ report back – subcommittees	Early December
Formulate recommendations – task force	Mid-December
Draft report – subcommittee	December-January
Finalize report – task force	January

Subcommittees were formed to address the three main areas of concern: low enrollment courses, small programs, and interdisciplinary programs. The registrar, Graduate College, and academic deans provided data and input. Several task force meetings were devoted to clarifying the issues, studying data, and forming recommendations. A writing subcommittee worked during the winter break to develop a draft so the task force could complete its work according to schedule upon return for Spring semester.

LOW ENROLLMENT COURSES

Analysis of Issues: *Low enrollment courses*

The task force discussed its charge relative to low enrollment courses and decided on the following strategies to attack the issues:

- There did not appear to be any uniform policy on minimum class/course size for the university. College and department policies and practices vary across campus with respect to class/course size. It was decided to poll the colleges on this issue.

- It was decided to study course/section size data to see what is actually offered and how that compares to existing guidelines for minimum size. The expectation was that there would be significant differences between undergraduate and graduate courses.
- The task force recognized that section type is a factor that must be considered. That is, laboratory, studio, and other special types of sections may have different physical and pedagogical constraints than other types of sections.
- The task force discussed the distinction between course size and section or class size. While these two tend to be the same for low enrollment courses, it was decided that section size was the most relevant issue for the present study. Section size most closely correlates with resources, particularly instructional resources.

Review of Data: *Low enrollment courses*

The task force asked all colleges to answer the following questions:

1. Does your college have a policy on minimum class sizes for undergraduate and graduate courses, and if so, are there different policies for lectures, laboratories, studios, etc?
2. Do departments in your college have their own policies? If so, please provide the same information.
3. Do you think there should be a university-wide policy on minimum class size?

The responses confirmed the task force's belief that no uniform policy exists, but nearly all colleges have college guidelines that are fairly well known. The recommended minimum class size for graduate classes ranged from 5 to 10, with an average of 6.75. For undergraduate classes, the minima ranged from 10 to 15, with an average of 12.9. Some colleges have different cut-offs for summer session than for the rest of the academic year. The College of Business has no policy on minimums because class sizes in the college are so big that minimums are rarely an issue. Generally, departments do not have stated policies on minimum class size, although often local practices are based on unwritten rules that are also well understood. Flexibility is often afforded departments as long as they stay within their budgets. Class sizes are studied routinely by college administrators when decisions are made about allocating additional teaching resources to a department.

Although there was some disagreement among colleges, the majority felt a university-wide standard would be helpful in supporting department chairs as they make difficult decisions about when to teach a given class and how to allocate their limited teaching resources.

The task force studied class size from several perspectives. Table 1 lists average course and section size data for Fall 2002 and Spring 2003 by course level. Average course size is greater than average section size because of multiple sections of courses. Section size is highest in the lower level courses, although the average for 200 level courses is greater than for 100 level courses. Generally, average section size decreases as course level increases, and as expected, the average for graduate level courses is substantially lower than for undergraduate courses. However, the average section size increases in the sophomore year, and generally the section sizes in the first two years are high. The university average for 100-400 level sections is 42.8. This measure is a significant factor in national ranking of undergraduate programs, such as *U.S. News and World Report*, and such large section size hurts Iowa State's ranking.

Table 2 provides more detail about average section size, giving the actual distributions for various size ranges. Included are data for the university as a whole, for undergraduate and graduate levels, and by course level from 100 to 600. Both the actual counts for 2002-2003 and the cumulative distributions are given. Figure 1 shows the data graphically. The cumulative data indicate that a substantial number of sections are small: 14.7% of the undergraduate sections have fewer than 15 students and 27.2% are below 15 at the 400 level. These data include laboratory, studio courses, etc, but not independent study courses (which are typically one-on-one). At the graduate level, 26.8% of the sections have fewer than 8 students.

Recommendations: *Low enrollment courses*

The task force believes that in light of the block budgeting system of Iowa State University, and the budget reductions the university has faced for some years, deans and department chairs are already under substantial pressure to eliminate small classes and programs whenever possible. Many have already taken significant steps in this direction.

In fact, the task force is particularly concerned about the opposite problem, the continual pressure to *increase* class sizes, as detrimental to the educational process at the university. Class size is one of many variables that affect student learning. However, on-going budget reductions

have caused the average class size on campus to increase, and in many cases very large sections of courses are used as a way to compensate for loss of faculty positions and to allow for the possibility of some smaller classes. A significant number of students experience mainly large section courses, or Web-based courses, in their first two years at Iowa State. In some high demand curricula, class sizes have become too large across the board.

Still, the task force believes that because of the percentages of small sections taught at the undergraduate and graduate levels, some opportunity exists to reduce the number of low enrollment sections offered, and to establish uniform guidelines for low enrollment courses:

1. For undergraduates, ***required*** courses should have highest priority – both service courses and courses that are taught for a department’s own curricula. Specifically, this means that such courses have higher priority than either elective or graduate courses.
2. The task force recommends that the following university guidelines be adopted. Colleges and departments could have more stringent guidelines.
 - *Undergraduate courses are expected to have minimum enrollments of 15 students.*
 - *Graduate courses at the 500 level are expected to have minimum enrollments of 8 students.*
 - Exceptions might include laboratories, design studios, various recitation-type subsections, off-campus courses, etc.
3. A review should be initiated by each college curriculum committee to identify approximately 15% of their undergraduate sections and 15% of their graduate sections that might be combined, eliminated, offered on a shared basis with other departments, or offered in alternate semesters or years. Focus should be on courses that typically have low enrollments or for which closely related courses exist. The 15% figure should be considered a target and not mandatory.
4. Departments and colleges should review their policies on faculty assignments to identify possible inconsistencies and opportunities to rebalance research, outreach, service, and teaching assignments. For example, it may be possible and more equitable for faculty members who are less active in research and/or outreach/service to increase their teaching assignments. Position Responsibility Statements need to be honored and adjustments would need to be made following established policy. In this

review, it must be recognized that sometimes faculty teach small sections above and beyond their normal assignments. This practice, while indicating the intense dedication of our faculty, does have a cost in terms of other activities that the faculty member cannot do. Further, the university cannot and should not rely on this mechanism of overload to conduct its teaching programs. The task force recognizes that these work load issues are highly local and are likely to vary considerably across departments and colleges. Nevertheless, any opportunities to rebalance faculty activities should be considered.

SMALL PROGRAMS

Analysis of Issues: *Small programs*

The task force spent a great deal of time discussing possible definitions of small programs. The task force settled on the following definitions to guide its work:

- *Program* – A program grants undergraduate or graduate degrees. Programs may or may not align with departmental designations. Minors were not considered programs for the purposes of this study.
- *Small Undergraduate Programs* – Undergraduate programs having 50 or fewer students as majors in Fall 03, including both first and second majors.
- *Small Graduate Programs* – Graduate programs (including Masters and Ph.D.) having 20 or fewer students as majors in Fall 03, including both first and second majors.

The task force decided to look at programs in rank order by number of students majoring, whether as first or secondary majors. The reason for this is that all students included as majors require the same resources, such as advising and coursework. For graduate programs, the task force considered that although there are differences based on whether programs are masters-level, Ph.D. level, or both, that the single criteria of 20 students would suffice to identify small programs for further study. The reason for this is that in many cases the master and doctoral programs are linked in various ways.

The task force discussed what criteria should be used to study programs for elimination or combination. Related is the issue of how to assess efficiency. Several factors come into play in considering these issues. To understand the interplay, the task force decided to look first at whether the program should be considered “small” and then whether elimination or combination would result in a *reduction of cost*. The primary indicator of cost is taken as whether eliminating a program would result in fewer faculty, and secondary consideration is given to other savings. This is logical for a first consideration because personnel cost is the largest portion of the university budget, and small programs by their very nature have small supplies and operational budgets.

In order to discover whether eliminating or combining programs would allow for a reduction in personnel, the task force studied the relationships among class size, program requirements, and program size. In many cases, degree programs exist as a combination of courses already offered in departments and for other majors. They are often sub-specialties that meet specific career or educational needs but do not require additional personnel. By contrast, programs that have small numbers of students (as majors) and require certain courses that have to be taught in small sections would be identified as more costly. Eliminating such programs could reduce costs.

The task force emphasized in its deliberations that there are significant differences between undergraduate and graduate programs with respect to program size. Further, there may be other compelling reasons to offer a particularly costly program (e.g. its uniqueness to the mission of Iowa State, uniqueness in the State, etc.).

Review of Data: *Small Programs*

The task force studied Registrar’s data for all of the programs offering undergraduate degrees and minors at Iowa State. Table 3 lists undergraduate programs with fewer than 50 majors for 2002-2003 that offer bachelors degrees. Programs that are being eliminated and new programs less than five years old are not included. The startup programs will be reviewed by the Board of Regents, State of Iowa, when they have operated five years. The table includes the numbers of first and second majors and the number of graduates for the last academic year. Also listed are data about the number and size of sections taught by the program faculty.

In analyzing the data for small undergraduate programs, it is important to recognize that several trade-offs exist. For example, in the Women's Studies program the numbers of majors and graduates are small, but the number of students served through the courses is significant: only 3 of 11 sections are small, yet the average section size is 48 students. Several of the programs listed in Table 3 serve curricular requirements in many other departments. The relationship of these programs and courses to the overall teaching mission of the institution should be considered.

Table 4 lists graduate programs with fewer than 20 majors for Fall 2003. The average number of graduates, 1998-2003, is also listed for each program. The graduate list is much longer than the undergraduate list, as expected. Many of the considerations are the same for the graduate and undergraduate programs. However, graduate programs are inexorably tied to research programs, many of which have significant external funding. Also, graduate students play important teaching roles in many programs where there are substantial obligations to teach students outside the major. Finally, graduate students have individualized programs of study, and in most departments there are few *required* courses for graduate students. For that reason, and because many of the programs listed do not offer their own courses, course and section size data are not included in Table 4.

Recommendations: *Small Programs*

The task force proposes that a process be initiated to review the viability of each of the programs in Tables 3 and 4 by the dean of the college responsible for the program. Included are programs that meet the operational definition of small programs: *Undergraduate* - fifty or fewer majors for the most recently completed academic year. *Graduate* – 20 or fewer Masters or Ph.D. students enrolled for the most recently completed year. Programs that are under five years old or are already targeted for elimination are not included.

The task force emphasizes that it is not recommending elimination of any of the programs on the list. However, by the task force's criteria explained above, they have been identified for further study. In difficult budget times all opportunities should be considered, but because of the small number and the small size of these programs, the financial impact of

eliminating some of them would be minimal. There may in fact be compelling arguments to retain every one of the programs listed.

The task force proposes the following guidelines for issues to be considered in the small program reviews:

- What is this major's present relationship to the university mission as an institution of science and technology and a liberal arts institution?
- If a departmental program, how does the program fit into the mission of the particular department or larger program?
- Besides majors, what other groups of students take courses in this program? These students might be minors in the program or students who take program courses to fulfill general education requirements.
- Is it desirable and economically feasible to increase the number of majors? Limitations may include a small pool of potential students, limited interest, and competition from other programs at other schools.
- How are teaching resources allocated for this program? For example, if a member of the faculty teaches two small sections to every large section taught by another member of the faculty, then this practice may offset the cost of teaching small sections and having small programs.
- Is the cost of the program offset by grant money or the use of teaching assistants?

INTERDISCIPLINARY PROGRAMS

Analysis of Issues: *Interdisciplinary programs*

Interdisciplinary programs (also commonly referred to as “cross disciplinary” or “interdepartmental”) draw faculty expertise from several academic departments and are administered by a college or department. Most undergraduate interdisciplinary programs are housed in the College of Agriculture or the College of Liberal Arts and Sciences. Graduate interdisciplinary programs tend to be more varied, and only a few report directly to an academic college. Most are administered directly by the Graduate College, but one is administered by a department. All interdisciplinary graduate programs have an identified faculty group that is

responsible for establishing the curriculum. All faculty hold their academic appointments in departments. Programs administered by the Graduate College tend to draw faculty from departments in several academic colleges. A complete list of interdisciplinary majors is provided in Table 5.

We considered whether or not interdisciplinary programs constitute a significant cost to the university. The general conclusion of the task force was that these programs have small direct costs and actually increase the efficiency of resource use by utilizing existing courses and by creatively drawing together existing faculty expertise that is scattered among several departments and colleges.

Undergraduate interdisciplinary programs are offered in order to make Iowa State attractive to prospective students, or to provide credentialing for jobs. Master's programs are offered in order to provide tuition income and service to the state economy, while interdisciplinary PhD granting programs are offered in order to recruit high quality graduate students to support the research enterprise. The existence of interdisciplinary programs is also important (and sometimes necessary) for the recruitment of new faculty and the retention of existing faculty. In many fields of study, interdisciplinary research is the wave of the future.

Review of Data: *Interdisciplinary programs*

The cost of faculty in interdisciplinary programs is borne by academic departments and colleges since no faculty are appointed exclusively to interdepartmental programs. Class costs are low, since only a small number of courses are offered outside the regular departmental structure. Only 4.5% (44) of low enrollment courses (enrollment <15) are associated with interdepartmental programs and nearly half of these (17/44) are associated with programs currently being eliminated. Generally, faculty members teach courses in these programs as part of their regular assignment, or as an uncompensated overload. A few budgets support the buy-out of faculty to teach in interdisciplinary settings, but these examples are rare. Most programs have small supplies and services budgets. Graduate programs require a larger budget than do undergraduate programs because they recruit students. Most interdisciplinary graduate programs have minimal budgets. In some cases, additional operating funds are derived from external grants. Table 6 shows the number of students and the administrative budgets of the 19

interdepartmental graduate programs that draw faculty from two or more academic colleges. These data are from the Graduate College.

Graduate interdisciplinary programs generally have faculty governance, a defined faculty, and a faculty chair or director, and most report to the Graduate College. Undergraduate programs also have a chair or director, but do not have a defined faculty and usually report to one academic college.

The operating budgets for interdisciplinary programs are generally modest. The major budgetary expense for graduate programs is recruitment of graduate students. This cost is justified not so much by the perpetuation of the program but by the need to recruit high quality graduate students to support university research programs. Because most of the courses that support interdisciplinary programs (both graduate and undergraduate) also appeal to students in departmentally based programs, eliminating an interdisciplinary program would have little budgetary impact and would often make the university less efficient, rather than more efficient. Also, eliminating some programs would hurt Iowa State's position in cutting-edge research.

Because program quality is an important issue, the task force was particularly concerned about small interdisciplinary graduate programs that might not be able to provide the course selection needed for a high quality education. If the university reduces the number of low enrollment sections, this problem is likely to become more acute. The task force did not feel qualified to assess program quality within the time frame of the current review. Interdisciplinary programs do undergo periodic external review, and specific factors should be identified for their reviews.

Interdisciplinary programs allow the university to utilize faculty expertise in new, creative, and efficient ways. These programs can be created and discontinued more easily than can academic departments. Their value to the university is to provide forefront approaches that draw in students. They justify their existence by attracting outstanding students, and by training those students in cutting-edge areas of research. ISU faculty bring in over \$200 million in external research support each year. This enterprise depends on high quality graduate students, and interdepartmental programs are more attractive to the best and the brightest than are many traditional disciplines. Over the past seven years, nearly all growth in graduate education at ISU has occurred in interdisciplinary programs. Several of our newer programs (e.g. Bioinformatics and Computational Biology, Human Computer Interaction, Information Assurance, and

Sustainable Agriculture) are national leaders and are attracting high quality students who would not be here without them. The number of interdepartmental graduate majors has increased from 17 in 1997 to 25 in 2003. However four of these (Botany, Microbiology, Veterinary Preventive Medicine, and Zoology) were preexisting departmental majors, and four (Biomedical Engineering, Botany, Industrial Relations, and Zoology) are at various stages of consideration for elimination. Most of the student enrollment increase has been due to increasing program size rather than because of proliferation of new programs.

Except for the 672 students in the undergraduate Biology, Botany, Genetics and Zoology (in the basic life sciences, only the Biochemistry major is not offered cooperatively by several departments), only 360 undergraduates are in interdisciplinary majors at ISU. This is only 1.5% of the student body and little savings would result in the elimination of these majors.

Graduate interdisciplinary programs are more expensive than undergraduate interdisciplinary programs because graduate programs directly recruit students. Nevertheless, the costs are modest and the benefits to the university are great. Because interdepartmental programs do not hire faculty, discontinuing them saves relatively little money. When university priorities change, these programs can easily be discontinued (Biomedical Engineering, Industrial Relations, and Zoology are current examples).

Recommendations: *Interdisciplinary programs*

Interdisciplinary graduate programs largely justify their existence and continued support by their ability to recruit high quality students. Studies in the life sciences have shown that GRE scores of interdepartmental students are significantly higher than students recruited into similar department based fields. That faculty believe in the superior ability of interdisciplinary programs to recruit the best students is attested by the spectacular growth of the programs (Genetics increased from 20 students in 1992 to 100 students at present) and the creation, through reorganization, of two new departments in the life sciences (EEOB and GDCB) that have no departmental graduate programs. These two departments rely entirely on interdepartmental programs for their graduate students (113 in December 2003). At the undergraduate level more than 1000 students are majoring in interdepartmental majors. Most of these students would not attend ISU if these majors were not offered.

Because administrative costs are modest, little is to be saved and much is risked by wholesale elimination of interdisciplinary programs at both the undergraduate and the graduate levels. However, because these programs demand valuable faculty time, programs should be eliminated when they no longer serve a substantial purpose. Administrative efficiencies should also be sought in all areas.

The task force recommends that each college carefully scrutinize its respective interdepartmental program offerings and recommend elimination or merger of programs that are inefficient or whose cost cannot be justified by enrollment, consistency with the University mission, service to the State or Iowa, or by its ability to support the research enterprise. Four interdepartmental graduate programs (Botany, Biomedical Engineering, Industrial Relations, and Zoology) are currently in various stages of discontinuation. This should be encouraged where appropriate.

The administrative support functions of logically grouped interdepartmental and departmental majors should be combined. Combining administrative functions has the potential to better utilize modest operating expenses. We do not recommend that individual majors be eliminated except when they have been identified as no longer justified by university priorities, because students are frequently attracted to ISU by the name of the major.

Quality is of special concern with interdisciplinary majors because their oversight mechanisms are less formal. The programs should be subject to rigorous and regular external review with particular attention paid to the curriculum and to the faculty who constitute each program. All academic programs are reviewed by external evaluators as part of the administrative review cycle mandated by the Board of Regents. Graduate interdisciplinary programs generally are more highly scrutinized for quality in this review process than are undergraduate programs, but over all that process is uneven. The task force recommends that more careful attention be paid to small interdisciplinary programs during academic program review, and that the review questions on page 10 for small programs guide the reviews of interdisciplinary programs on a on-going basis.

If university priorities include strengthening the research enterprise, increasing the number of graduate students, and increasing the number of out-of-state undergraduate students, then the most cost effective way to do this is to encourage the creation of new interdisciplinary programs and to better fund existing programs in those areas that are attractive to high quality

students and where faculty expertise is strong. If the growth shown in Figure 2 is to be sustained, then modest increases in administrative support will be necessary. The task force recommends that administrative support budgets for key strategic programs be reviewed and increased as appropriate.

SUMMARY OF RECOMMENDATIONS

Recommendations: *Low enrollment courses*

1. For undergraduates, **required** courses should have highest priority – both service courses and courses that are taught for a department’s own curricula. Specifically, this means that such courses have higher priority than either elective or graduate courses.
2. The task force recommends that the following university guidelines be adopted. Colleges and departments could have more stringent guidelines.
 - *Undergraduate courses are expected to have minimum enrollments of 15 students.*
 - *Graduate courses at the 500 level are expected to have minimum enrollments of 8 students.*
 - Exceptions might include laboratories, design studios, various recitation-type subsections, off-campus courses, etc.
3. A review should be initiated by each college curriculum committee to identify approximately 15% of their undergraduate sections and 15% of their graduate sections that might be combined, eliminated, offered on a shared basis with other departments, or offered in alternate semesters or years.
4. Departments and colleges should review their policies on faculty assignments to identify possible inconsistencies and opportunities to rebalance research, outreach, service, and teaching assignments.

Recommendations: *Small Programs*

1. The task force proposes that a process be initiated to review the viability of each of the programs in Tables 3 and 4 by the dean of the college responsible for the program. Included are programs that meet the operational definition of small programs: *Undergraduate* - fifty or fewer majors for the most recently completed academic year. *Graduate* - 20 or fewer Masters or Ph.D. students enrolled for the most recently completed year. Programs that are under five years old or are already targeted for elimination are not included.

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 - What is this major's present relationship to the university mission as an institution of science and technology and a liberal arts institution?
 - If a departmental program, how does the program fit into the mission of the particular department or larger program?
 - Besides majors, what other groups of students take courses in this program?
 - Is it desirable and economically feasible to increase the number of majors?
 - How are teaching resources allocated for this program?
 - Is the cost of the program offset by grant money or the use of teaching assistants?

Recommendations: *Interdisciplinary programs*

1. The task force recommends that each college carefully scrutinize its respective interdepartmental program offerings and recommend elimination or merger of programs that are inefficient or whose cost cannot be justified by enrollment, consistency with the University mission, service to the State or Iowa, or by its ability to support the research enterprise. Four interdepartmental graduate programs (Botany, Biomedical Engineering, Industrial Relations, and Zoology) are currently in various stages of discontinuation. This should be encouraged where appropriate.
2. The administrative support functions of logically grouped interdepartmental and departmental majors should be combined. Combining administrative functions has the potential to better utilize modest operating expenses. We do not recommend that individual majors be eliminated except when they have been identified as no longer justified by university priorities, because students are frequently attracted to ISU by the name of the major.
3. Quality is of special concern with interdisciplinary majors because their oversight mechanisms are less formal. The programs should be subject to rigorous and regular external review with particular attention paid to the curriculum and to the faculty who constitute each program. All academic programs are reviewed by external evaluators as part of the administrative review cycle mandated by the Board of Regents. Graduate interdisciplinary programs generally are more highly scrutinized for quality

in this review process than are undergraduate programs, but over all that process is uneven. The task force recommends that more careful attention be paid to small interdisciplinary programs during academic program review, and that the review questions on page 10 for small programs guide the reviews of interdisciplinary programs on a on-going basis.

4. The task force recommends that administrative support budgets for key strategic programs be reviewed and increased as appropriate.

APPENDIX

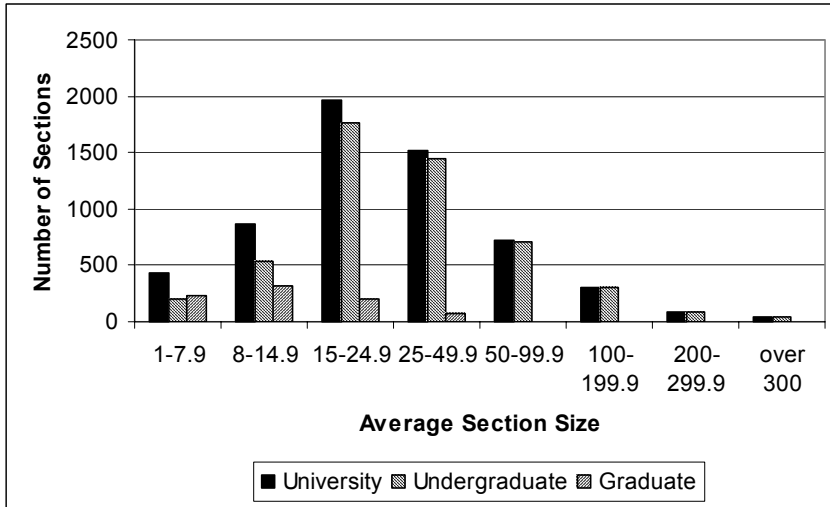
	Total Enrollment	Total Number of Courses	Total Number of Sections	Average Course Size	Average Section Size
100 Level	74264	443	1556	167.6	47.7
200 Level	57697	489	1008	118.0	57.2
300 Level	57839	1034	1506	55.9	38.4
400 Level	27990	836	1013	33.5	27.6
Undergraduate	217790	2802	5083	77.7	42.8
500 Level	9475	618	649	15.3	14.6
600 Level	2284	182	187	12.5	12.2
Graduate	11759	800	836	14.7	14.1
University	229549	3602	5919	63.7	38.8

Table 1. Fall 2002 and Spring 2003 Course and Section Size by Level

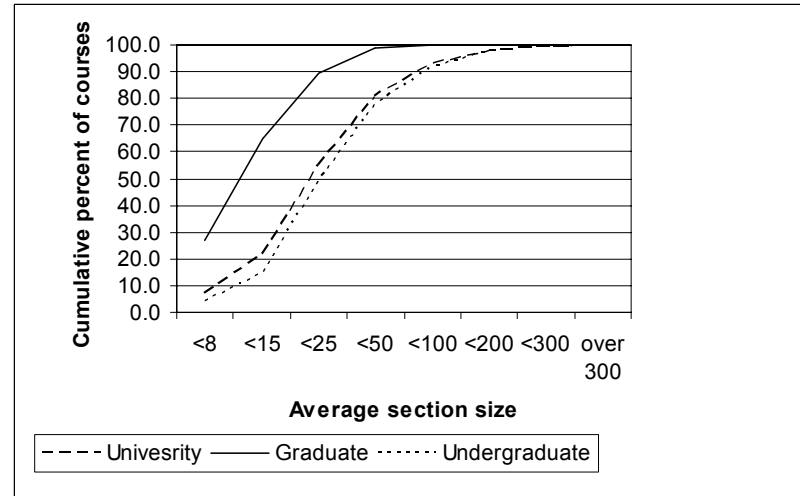
Section Size	University		Undergraduate		Graduate		100 Level		200 Level	
	Count	Cum %	Count	Cum %	Count	Cum %	Count	Cum %	Count	Cum %
1-7.9	428	7.2	204	4.0	224	26.8	33	2.1	12	1.2
8-14.9	862	21.8	541	14.7	321	65.2	113	9.4	65	7.6
15-24.9	1961	54.9	1756	49.2	205	89.7	653	51.3	366	43.9
25-49.9	1519	80.6	1442	77.6	77	98.9	366	74.9	214	65.2
50-99.9	720	92.8	713	91.6	7	99.8	229	89.6	199	84.9
100-199.9	306	97.9	304	97.6	2	100.0	103	96.2	107	95.5
200-299.9	86	99.4	86	99.3	0	100.0	38	98.7	31	98.6
over 300	37	100.0	37	100.0	0	100.0	21	100.0	14	100.0
Total	5919		5083		836		1556		1008	

Section Size	300 Level		400 Level		500 Level		600 Level	
	Count	Cum %	Count	Cum %	Count	Cum %	Count	Cum %
1-7.9	59	3.9	100	9.9	148	22.8	76	40.6
8-14.9	187	16.3	176	27.2	263	63.3	58	71.7
15-24.9	453	46.4	284	55.3	171	89.7	34	89.8
25-49.9	522	81.1	340	88.8	58	98.6	19	100.0
50-99.9	195	94.0	90	97.7	7	99.7	0	100.0
100-199.9	72	98.8	22	99.9	2	100.0	0	100.0
200-299.9	16	99.9	1	100.0	0	100.0	0	100.0
over	2	100.0	0	100.0	0	100.0	0	100.0
Total	1506		1013		649		187	

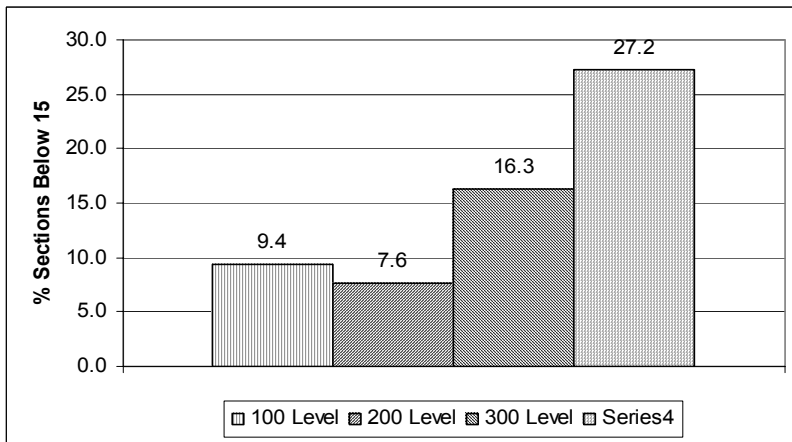
Table 2. Average section size by course level, Fall 02 and Spring 03.



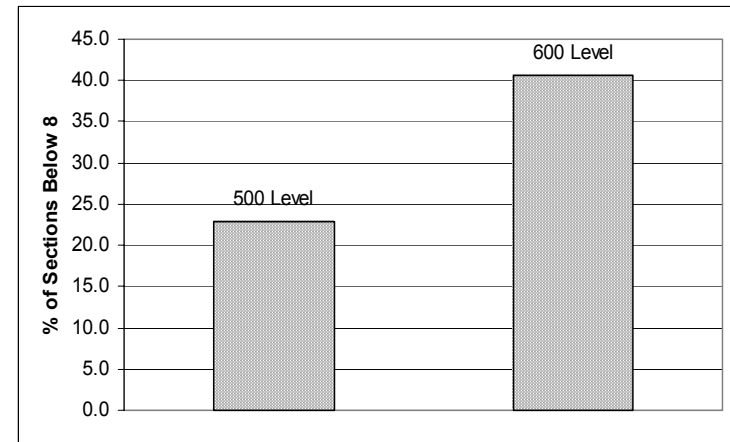
(a) Section size distribution



(b) Cumulative data



(c) Undergraduate



(d) Graduate

Figure 1. Representations of average section size data by course level, Fall 02 and Spring 03

College	Program	Sections taught	Section Size				Enrollment*			No. of Graduates**
			Average	No. below 15	largest	smallest	1st Major	2nd Major	Total	
Intdisc	Biological/Pre-Medical Illustration	4	15	2	23	7	38	1	39	6
LAS	Botany	19	25	13	92	3	10	2	12	5
LAS	Entomology	13	32.7	5	100	2	12	1	13	4
LAS	Environmental Studies	4	93	0	114	78	0	37	37	9
LAS	French	30	18.4	13	30.5	4	13	8	21	6
Intdisc	Geology	30	61	11	252	1	19	4	23	9
LAS	German	23	18.1	9	31.7	2	7	12	19	3
LAS	International Studies	3	25.3	0	37	16	0	21	21	4
AG	Plant Health & Protection	4	17.5	2	43	2	7	6	13	3
LAS	Religious Studies	30	47.7	1	81	6	14	11	25	6
LAS	Russian Studies	13	12.2	9	18	4	7	9	16	3
LAS	Speech Communication	77	25.9	3	199	2	18	1	19	17
LAS	Statistics	77	53.5	6	139	3	23	6	29	6
LAS	Women's Studies	11	48	3	204	13	7	6	13	2

* F03 Count

** Includes majors only for Summer 02, F02, S03

Table 3. Section and enrollment data for undergraduate programs with fewer than 50 majors, 2002-2003

Table 4. Graduate Programs with fewer than 20 majors, Fall, 2003

Major Name	Department	Major 1	Major 2	Total	Grads*
Agricultural History and Rural Studies (MS, PhD)	History	14		14	1.2
Agricultural Meteorology (MS, PhD)	Agron	3		3	1.2
Animal Breeding and Genetics (MS, PhD)	An Sci	10		10	4
Animal Ecology (MS, PhD)	NREM	10		10	2.8
Animal Nutrition (MS, PhD)	An Sci	15		15	7
Animal Physiology (MS, PhD)	An Sci	6		6	1.2
Animal Science (MS, PhD)	An Sci	15		15	2.7
Anthropology (MA)	Anthro	12		12	4.6
Applied Math (MS, PhD)	Math	15	2	17	27
Architectural Studies (MS)	Arch	2		2	4
Art and Design (MA)	Art and Design	20		20	8
Astrophysics (MS, PhD)	Physics	3		3	1.8
Biophysics (MS, PhD)	BBMB	8		8	0.6
Botany (MS, PhD)	Grad Col	6		6	2.6
Business (MS)	Business	2		2	2.6
Earth Science (MS, PhD)	GEAT	0		0	0
Exercise and Sports Science (MS)	HHP	18	1	19	14.2
Fisheries Biology (MS, PhD)	NREM	4	1	5	1.8
Foodservice and Lodging Management (MS, PhD)	AESHM	15		15	4.8
Forestry (MS, PhD)	NREM	14		14	4.8
Geology (MS, PhD)	GEAT	16		16	5.2
Health and Human Performance (MS, PhD)	HHP	11		11	10
High Energy Physics (MS, PhD)	Physics	3		3	1.6
History (MA)	History	18		18	4.8
History of Technology and Science (MA, PhD)	History	9		9	2.4
Horticulture (MS, PhD)	Horticulture	19	1	20	4.2
Inorganic Chemistry (MS, PhD)	Chemistry	16		16	5.4
Interior Design (MFA)	Art and Design	10		10	1.6
Meteorology (MS, PhD)	GEAT	15		15	2.4
Nuclear Physics (MS, PhD)	Physics	7		7	0.6
Operations Research (M.S.)	IMSE/STAT	0		0	0
Plant Pathology (MS, PhD)	Plant Path	12	2	14	6.2
Political Science (MS, PhD)	Political Sci	15		15	3
Rural Sociology (MS, PhD)	Sociology	6		6	3
School Mathematics (MSM)	Math	2		2	5.4
Transportation (MS)	Grad Col	8		8	1
Veterinary Clinical Sciences MS)	Vet. Clinical Sci	1		1	3.2
Veterinary Diagnostic and Preventive Animal Medicine (MS)	VDPAM	3		3	0.5
Veterinary Pathology (MS, PhD)	Vet Path	14		14	3
Veterinary Preventive Medicine (MS)	VDPAM	4		4	0.2
Wildlife Biology (MS, PhD)	NREM	1		1	1
Zoology (MS, PhD)	Grad Col	6	1	7	1.4

* Annual average from 1998-2003

Table 5. List of interdisciplinary programs.

Program	College	Notes
Undergraduate		
Biological/premedical Illustration	Dsgn/LAS	
Biology	LAS/AG	
Botany	LAS	to be discontinued
Environmental Science	AG/LAS	
Environmental Studies	AG/LAS	2nd major only
Genetics	LAS/AG	
Interdisciplinary Studies	LAS	
International Agriculture	AG	2nd major only
International Business	BUS	2nd major only
International Studies	LAS	2nd major only
Linguistics	LAS	
Microbiology	AG	
Pest Management	AG	2nd major only
Plant Health and Protection	AG	
Speech Communication	LAS	
Women's Studies	LAS	
Zoology	LAS/AG	to be discontinued
Graduate		
Bioinformatics and Computational Biology	GRAD	new in 1999
Biomedical Engineering	GRAD	to be discontinued
Botany	GRAD	to be discontinued
Biorenewable Resources and Technology	GRAD	new in 2003
Business (MS)	BUS	
Business Administration	BUS	
Ecology and Evolutionary Biology	GRAD	
Family and Consumer Sciences	FCS	
Genetics	GRAD	
Human Computer Interaction	GRAD	new in 2003
Immunobiology	GRAD	
Information Assurance	GRAD	
Industrial Relations	GRAD	to be discontinued
Interdisciplinary Studies	GRAD	
Molecular, Cellular and Developmental Biology	GRAD	
Microbiology	GRAD	reorg in 2003
Neuroscience	GRAD	
Plant Physiology	GRAD	
Professional Agriculture	AG	
Sustainable Agriculture	AG	new in 2001
Systems Engineering	GRAD	
Toxicology	GRAD	
Transportation	GRAD	
Veterinary Preventive Medicine	VET	reorg in 2001
Water Resources	GRAD	
Zoology	GRAD	to be discontinued

Figure 2. Growth in interdepartmental graduate education at ISU since 1997

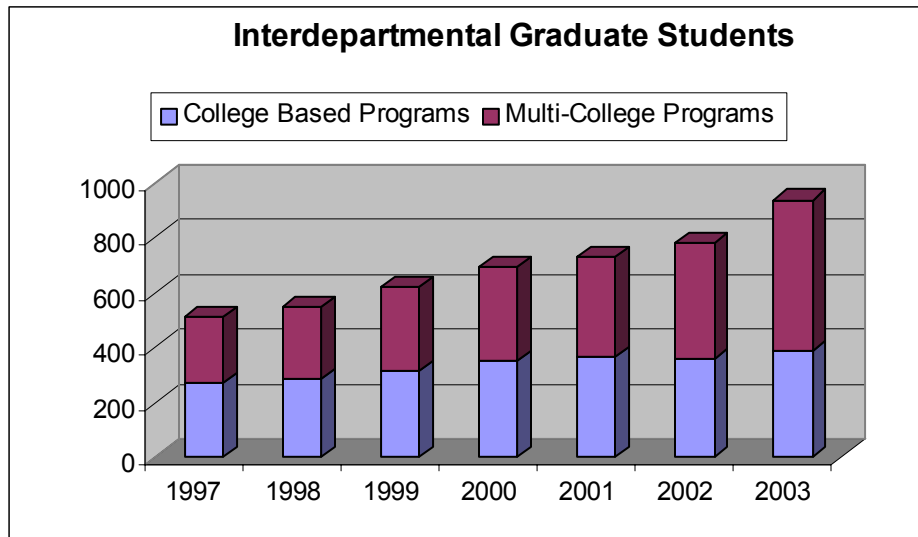


Table 6. Support budgets for 19 multi-college interdepartmental graduate programs

	Degrees Offered	# Students Fall 2003	Expense Budgets	Staff Salaries	TOTAL
Bioinformatics and Computational Biology ⁺	MS, PhD	51	\$ 15,000	\$ 10,270	\$ 25,270
Biomedical Engineering*	MS, PhD	1	\$ -	\$ -	\$ -
Biorenewable Resources and Technology** ⁺	MS, PhD	8	\$ -	\$ -	\$ -
Botany*	MS, PhD	7	\$ -	\$ -	\$ -
Ecology and Evolutionary Biology	MS, PhD	50	\$ 8,500	\$ 13,839	\$ 22,339
Genetics	MS, PhD	99	\$ 36,952	\$ 28,912	\$ 65,864
Human Computer Interaction** ⁺	MS, PhD	8	\$ -	\$ -	\$ -
Immunobiology	MS, PhD	23	\$ 5,500	\$ 13,839	\$ 19,339
Industrial Relations*	MS	18	\$ -	\$ -	\$ -
Information Assurance ⁺	MS	48	\$ -	\$ -	\$ -
Microbiology	MS, PhD	18	\$ 16,000	\$ 9,645	\$ 25,645
Molecular, Cellular, and Developmental Biology	MS, PhD	36	\$ 17,750	\$ 13,839	\$ 31,589
Neuroscience	MS, PhD	25	\$ 5,500	\$ 13,839	\$ 19,339
Plant Physiology	MS, PhD	29	\$ 5,500	\$ 9,645	\$ 15,145
Sustainable Agriculture	MS, PhD	27	\$ -	\$ -	\$ -
Toxicology	MS, PhD	22	\$ 7,400	\$ 9,637	\$ 17,037
Transportation ⁺	MS	8	\$ -	\$ -	\$ -
Water Resources	MS, PhD	22	\$ 1,750	\$ -	\$ 1,750
Zoology*	MS, PhD	8	\$ -	\$ -	\$ -
		508	\$ 119,852	\$ 123,465	\$243,317
* Programs scheduled for discontinuation or reorganization					
** Funding combined with presidential initiative and research center					
⁺ Additional administrative support through external grants					