

## University Senate Instruction, Curricula, and Advising Committee

### Online Education at Rutgers University

**Charge S1015: Survey the existing state of online education at Rutgers and identify issues and challenges.**

**Online Courses:** An online course is an internet-based, asynchronous course conducted via computer and broadband. Unlike hybrid courses, which combine face-to-face lessons (the class convenes as a group in a university facility), in a fully online course no more than three face-to-face class meetings will generally take place for the duration of the course. Where face-to-face meetings do take place they will usually be for purposes of orientation, the taking of a mid-term exam, and for the final. In many cases, the class never meets face to face. Like hybrid and web-enhanced courses, online courses are able to take advantage of a full array of instructional technologies, including, among others, podcasts, videos, discussion boards, games, collaborative tools, and chat rooms.

Increasingly, many prestigious institutions are offering online courses, programs, and even degrees. However, there is still some stigma attached to “getting a degree online.” Online education tends to be associated with credentialism, and for some is not in line with what a research university should be.

In February 2011, the Middle States Commission on Higher Education published *Distance Education Programs: Interregional Guidelines for the Evaluation of Distance Education (Online Learning)* <<http://www.msche.org/publications/Guidelines-for-the-Evaluation-of-Distance-Education.pdf>>. The *Guidelines* offer “Nine Hallmarks of Quality” for online courses and programs. As part of their Middle States accreditation, institutions are asked to include evidence of how their programs meet these hallmarks. The hallmarks are:

1. Online learning is appropriate to the institution’s mission and purposes
2. The institution’s plans for developing, sustaining, and, if appropriate, expanding online offerings, are integrated into its regular planning and evaluation processes
3. Online learning is incorporated into the institution’s systems of governance and academic oversight
4. Curricula for the institution’s online learning offerings are coherent, cohesive, and comparable in academic rigor to programs offered in traditional instructional formats
5. The institution evaluates the effectiveness of its online offerings, including the extent to which the online learning goals are achieved, and uses the results of its evaluations to enhance the attainment of the goals
6. Faculty responsible for delivering online learning curricula and evaluating the students’ success in achieving the online learning goals are appropriately qualified and effectively supported
7. The institution provides effective student and academic services to support students enrolled in online learning offerings
8. The institution provides sufficient resources to support and, if appropriate, expand its online learning offerings
9. The institution assures the integrity of its online learning offerings

#### Online Courses at Rutgers

In Fall 2009, 3183 students were enrolled in fully online courses at Rutgers—a 155 percent increase over the previous Fall. Until very recently, the majority of courses offered at Rutgers in a fully online format were graduate courses. In the Fall of 2009, the largest number of online students, 1,089, were undergraduates enrolled in four introductory courses—Intro to Music; Intro to Music Theory; American

Song, and Art Appreciation—at Mason Gross.<sup>1</sup> Online courses were available on all three campuses, and were available to both undergraduates and graduate students. Among the offerings was a freshman Astrophysics course as well as doctoral courses offered by the College of Nursing, whose doctoral program is now completely online. In Fall 2010, both the Spanish and the Writing Program in New Brunswick offered online courses—looking to reach more people but in the online equivalent of a small classroom environment.

**Unduplicated Online Course Enrollments: Fall 2009 Semester  
Data Sorted by Sponsoring Unit and Course Management System**

Unit Code	School	TOTAL	Pearson eCollege	Blackboard	Sakai
01	School of Arts and Science	189	56	0	133
04	School of Communication and Information	9	0	0	9
05	Graduate School of Education	45	45	0	0
07	Mason Gross School of Arts	1,089	1,089	0	0
10	Bloustein	29	29	0	0
11	SEBS	68	68	0	0
15	Graduate School of Education	108	108	0	0
17	School of Communication and Information	578	578	0	0
18	Grad School of Applied & Professional Psychology	5	5	0	0
19	School of Social Work	107	46	0	61
20	School of Public Affairs and Administration	26	0	26	0
21	Newark Arts and Sciences	79	51	28	0
22	Rutgers Business School	214	214	0	0
25	College of Nursing	123	123	0	0
26	College of Nursing	284	132	152	0
37	School of Management and Labor Relations	57	57	0	0
38	School of Management and Labor Relations	56	56	0	0
50	Camden Arts and Sciences	83	83	0	0
52	Camden School of Business	34	34	0	0
	<b>Fall 2009</b>	<b>3,183</b>	<b>2,774</b>	<b>206</b>	<b>203</b>
		100.00%	87.15%	6.47%	6.38%

In the Fall of 2009, most courses had 18 to 20 students enrolled; the largest online classes had 50 to 55 students although 30 is often suggested as a maximum number. About 83 percent of fully-online courses were using the Pearson eCollege Course Management System supported by the Rutgers Division of Continuing Studies.

In the Fall of 2010, 248 classes (+42.5 percent) were offered in a fully-online environment. While the 4306 students<sup>2</sup> enrolled in these courses represent a 35.3 percent increase over the previous fall, this is

<sup>1</sup> This seems to be a particularly Rutgers phenomenon; nationally Business leads in online courses offered in both undergraduate and graduate programs. Building on its success in the online environment, in the Spring of 2010 Arts Online was established as a division of the Mason Gross School of the Arts and currently offers 15 online courses from all four of its departments—dance, music, theater, and visual arts. The Introduction to Music class developed by Professor Richard Metzger and taught in multiple sections serves as an interesting model of a successful online course.

<sup>2</sup> About 65 percent of the students enrolled in Rutgers online courses are traditional, on-campus students as opposed to students enrolled in fully online programs.

a very small number in terms of the total number of Rutgers students and courses.<sup>3</sup> And a very modest number compared to institutions such as Penn State (over 200,000 online enrollment) and the University of Washington (over 150,000 online enrollment).

There is increasing institutional interest in the development of online courses. In Camden, Deans are offering \$3000 grants to faculty interested in developing such courses.

While the technologies are certainly available for the more traditional web-enhanced courses, online courses put additional pressure on faculty to develop and incorporate instructional technologies such as streaming lectures, threaded discussions, online peer-to-peer review, online quizzes and exercises, simulations, games, podcasts and other self-paced presentations. For students, especially working students, it helps with time management—there is no need to factor in commuting to campus time or even the requirement to be somewhere at a specified time. For students whose personal circumstances are such that living on campus is not an option, it allows them to enroll in courses/programs they may otherwise not have been able to consider. With the new GI Bill, there will be significant increases in the number of non-traditional students for whom online education becomes a matter of access and not just convenience. For Schools and departments the ability to offer such scheduling flexibility results in a significantly broader potential student base. For example, as a result of an increased applicant pool once their Ph.D. program went online the College of Nursing was able to be much more selective in their admissions process. For the University, it allows for greater access to its programs while simultaneously alleviating the drain on precious on-site resources—class rooms, computer labs, parking facilities, etc. On the other hand, it requires much more discipline and time management on the part of students—qualities that for many undergraduates may be just in the initial stage of development.

Rutgers currently offers five online graduate degrees: the Masters in Library and Information Science (SC&I); the Masters in Accountancy in Government Accounting (SOB); the Ed.M. in Learning, Cognition and Development (GSE); and the M.S. and Ph.D. in Nursing (CN).

### **Pedagogical Implications**

As with the hybrid model, there is no clear evidence that online learning is pedagogically superior to other formats. A recent U.S. Department of Education sponsored meta-analysis of online learning research found that while “Students in online conditions performed modestly better, on average, than those learning the same material through traditional face-to-face instruction,” the instructional media may not be the main reason for the difference.

Learning outcomes for students who engaged in online learning exceeded those of students receiving face-to-face instruction, with an average effect size of +0.20 favoring online conditions. The mean difference between online and face-to-face conditions across the 50 contrasts is statistically significant at the  $p < .001$  level. Interpretations of this result, however, should take into consideration the fact that online and face-to-face conditions generally differed on multiple dimensions, including the amount of time that learners spent

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<sup>3</sup> In the Fall of 2010, the headcount enrollment at Rutgers was 56,868; 8,025 course sections (6,259 undergraduate and 1,766 graduate) were offered that semester. (*2010-2011 Rutgers Fact Book*, <http://oirap.rutgers.edu/instchar/factbook10.html>).

on task. The advantages observed for online learning conditions therefore may be the product of aspects of those treatment conditions other than the instructional delivery medium per se.<sup>4</sup>

The analysis further showed that while blended (hybrid) instruction seemed to result in better learning outcomes than purely face-to-face instruction, there was virtually no difference in outcomes between purely online and purely face-to-face students:

The mean effect size in studies comparing blended with face-to-face instruction was +0.35,  $p < .001$ . This effect size is larger than that for studies comparing purely online and purely face-to-face conditions, which had an average effect size of +0.05,  $p = .46$ . In fact, the learning outcomes for students in purely online conditions and those for students in purely face-to-face conditions were statistically equivalent. An important issue to keep in mind in reviewing these findings is that many studies did not attempt to equate (a) all the curriculum materials, (b) aspects of pedagogy and (c) learning time in the treatment and control conditions. Indeed, some authors asserted that it would be impossible to have done so. Hence, the observed advantage for blended learning conditions is not necessarily rooted in the media used per se and may reflect differences in content, pedagogy and learning time.<sup>5</sup>

A recent study<sup>6</sup> that tracked students enrolled in Washington State community and technical colleges over a five-year period, found that students who took online courses early in their academic career were less likely to complete those courses than students in fact-to-face or hybrid courses; and also that those students were “slightly but significantly” more likely to drop out of school in subsequent terms.<sup>7</sup>

Ultimately the effectiveness of online instruction will depend to some degree on a variety of factors, including the discipline and the course level, the level of motivation and self-discipline of the student, and the knowledge, skill, and willingness of the instructor to utilize those features which best exemplify that modality within the setting of that particular class.

Students learn in different ways; there is no doubt that some students thrive in the online environment and may learn better in that mode. Some students who would never speak in a face-to-face class blossom in the online environment—if only because discussion is not just encouraged, but required.

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<sup>4</sup> U.S. Department of Education, Office of Planning, Evaluation, and Policy Development. *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies*. Washington, D.C., 2010, p. xiv. <<http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>> Analysis was based on 50 research reports selected from over a thousand studies on online learning from 1996 through July 2008. Selected studies were those which “(a) contrasted an online to a face-to-face condition, (b) measured student learning outcomes, (c) used a rigorous research design, and (d) provided adequate information to calculate an effect size.” (Abstract, p.ix).

<sup>5</sup> U.S. Department of Education, p. xv. While the report is careful to point out that it may not be the media that is directly responsible for differences in outcomes between online, hybrid, and face-to-face learning, ultimately those other factors come into play as a result of the use of the media and are intrinsically tied to the media.

<sup>6</sup> Di Xu and Shanna Smith Jaggars. *Online and Hybrid Course Enrollment and Performance in Washington State Community and Technical Colleges*. CCRC Working Paper No. 31. New York, Columbia University Teachers College, Community College Research Center, March 2011.  
<[http://ccrc.tc.columbia.edu/DefaultFiles/SendFileToPublic.asp?ft=pdf&FilePath=c:\Websites\ccrc\\_tc\\_columbia\\_edu\\_documents\332\\_872.pdf&fid=332\\_872&aid=47&RID=872&pf=Publication.asp?UID=872](http://ccrc.tc.columbia.edu/DefaultFiles/SendFileToPublic.asp?ft=pdf&FilePath=c:\Websites\ccrc_tc_columbia_edu_documents\332_872.pdf&fid=332_872&aid=47&RID=872&pf=Publication.asp?UID=872)>

<sup>7</sup> Xu and Jaggars, p. 19.

Many faculty grade threaded discussions. There's no way to hide in the back of the room. So to some extent the online model forces active learning.

The online environment—in online courses as well as in properly developed web-enhanced courses—can also provide expanded opportunities for group work and the opportunity for students to learn from each other. In large classes online communication tools—chat, threaded discussions, small-group discussions—enhance the students' ability to relate to each other and to the instructor. And as we know such a relationship is a critical factor in student retention, especially in the first two years.

Content is also usually offered in smaller pieces than in the face-to-face environment and so may be easier for students to absorb.

Web-based assignments, whether in an online, hybrid, or web-enhanced course, also offer opportunities for some continuous assessment of understanding and needs. Online quizzes for example, allow an instructor to quickly see where most students are having difficulties and adjust their focus accordingly.

But ultimately the medium should be invisible—what is most important is how students are engaging with the material. It's not about the technology. Successful online learners tend to be well-organized, self-disciplined, and self-directed. As of course are the most successful learners in other modalities!

Nor have all online courses proven successful. The Writing Program's attempt to offer sections of English 101 in an online format resulted in an extremely high failure rate and was discontinued. Online courses require students to be proactive and well-organized; some of the very young students who tend to be the bulk of those enrolled in English 101 were just not ready to do well in this format.

## **Syllabi**

There has been growing concern about the need for timely access to syllabi for all courses. Certainly a course offered in a more traditional modality should be laid out in advance. However an online course *must* be totally developed in advance—opportunities to make changes on the fly are limited. A well-developed, detailed syllabus is especially critical for online courses, where it serves as the main source of information about that class. The syllabus needs to be explicit and comprehensive about not only what is going to be covered but *how*—what technologies are going to be utilized, are there expectations for real-time interactions, how will participation in discussions be required and enforced, etc. This is information that it is especially important to convey to students who may not be familiar with the workings and requirements of online courses.

## **Synchronous vs. Asynchronous**

While most course management platforms allow for live video streams and online chat, and some faculty are using Voice-over IP, student schedules and locations make the use of these largely impractical. There are a small number of synchronous online courses currently being offered at Rutgers. For example, a Pacific Rim language course is being taught in New Brunswick but is simultaneously available online to Newark students. Some online courses do make use of Live Classroom, a presentation software that allows participants to log in, view a presentation/review content and interact in real time. While this allows for more interaction—students can not only ask questions/receive responses and have discussions in real time, but can also use status to indicate a raised hand, approval/disapproval, confusion, laughing, clapping, etc.—there are room, equipment, and staff

constraints. The software can also be used for office hours. However, online courses are largely asynchronous courses.

## Academic Integrity

As was the case with hybrid courses,<sup>8</sup> one of the biggest areas of concern with online courses is the perceived potential for increased cheating. Studies to date have not offered conclusive evidence that more cheating actually occurs in the online environment. In a study of 635 undergraduate and graduate students at a mid-sized university, Watson and Sottile (2010)<sup>9</sup> found no significant difference in actual cheating admitted to by students in face-to-face and in online classes. At the same time, students reported a heightened perception of the likelihood of cheating in an online environment—42.2 percent of the students surveyed said they would be more likely to be dishonest in the online environment and 61.0 percent thought their classmates would be more likely to be dishonest in the online environment.

Faculty certainly need to be conscious of issues of academic integrity when developing an online course—it may be that in some cases the same kinds of assessment instruments should not be used in an online course as in a face-to-face course. Faculty should remain vigilant to possible academic integrity violations and pursue those as they would violations in any other modality.

The Middle States' *Interregional Guidelines* suggest that evidence for meeting the ninth hallmark of quality, "The institution assures the integrity of its online learning offerings,"<sup>10</sup> might include:

- The institution's policies on academic integrity include explicit references to online learning;
- Training for faculty members engaged in online learning includes consideration of issues of academic integrity, including ways to reduce cheating.

The new Academic Integrity Policy currently does not explicitly mention online courses; it may be a good idea to add such language.

The *Guidelines* also encourage institutions to consult the WICHE Cooperative for Educational Technologies (WCET) *Best Practice Strategies to Promote Academic Integrity in Online Education* <<http://wcet.wiche.edu/wcet/docs/cigs/studentauthentication/BestPractices.pdf>>.

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<sup>8</sup> See *Hybrid Courses and Model of Teaching* (October 2009) <<http://senate.rutgers.edu/ICAConS0806HybridCoursesOctober2009AsAdopted.pdf>> p.4.

<sup>9</sup> George Watson and James Sottile. "Cheating in the Digital Age: Do Students Cheat More in Online Courses?" *Online Journal of Distance Learning Administration* 13(1), Spring 2010. <<http://www.westga.edu/~distance/ojdl/spring131/watson131.html>>

<sup>10</sup> Middle States Commission on Higher Education. *Distance Education Programs: Interregional Guidelines for the Evaluation of Distance Education (Online Learning)*. Philadelphia, February 2011, p. 14 <<http://www.msche.org/publications/Guidelines-for-the-Evaluation-of-Distance-Education.pdf>>.

## Contact Hours

There was some concern expressed about how contact hours are to be defined for online courses. However, while the New Jersey Administrative Code sets minimum contact hours for face-to-face instruction, it specifies that “A semester credit hour is not required to be counted on an hour for hour basis for distance learning or blended (or hybrid) learning.”<sup>11</sup>

## Identifying Potential Courses

While some incentives in the form of grants have been offered to faculty interested in developing an online course by individual campuses and by the Division of Continuing Studies, and OIRT has offered support to faculty, no concerted systematic effort has been made to identify potentially interested faculty. The Committee would recommend that a survey be developed and distributed by Deans to all faculty and qualified (as identified by departments) graduate students, asking if they would be interested in teaching an online class and what class they might be interested in developing in an online format.

## Appropriate Courses

The committee discussed the issue of whether or not there are courses that cannot/should not be taught online. The general consensus was that whether a specific course could appropriately be taught in a fully online environment was best left to departments (in the case of existing courses) or curriculum committees (in the case of new courses), and that there would be differences between disciplines and course levels. In general it seems that online graduate and professional courses are most likely to be viable; introductory courses aimed at first-year students may be more problematic.

## Course Equivalencies

The committee discussed the question of who decides when an online course is the equivalent of a face-to-face course. It was agreed that ultimately this is the department’s responsibility and we would encourage departments to seriously look at proposals to offer previously face-to-face courses in the online format. Courses reflect on the department; as with courses in other modalities departments should consider how learning goals are being met.

It is assumed that new (not previously offered as a face-to-face course) courses would follow standard procedures for new course approval, and would be identified as an online course when presented to a curriculum committee.

## Course Preparation

Training needs to be available for faculty to utilize the available technology most effectively. In most cases, this means looking beyond just moving what they have always done online. As the University actively looks to expand its online offerings, such training is increasingly needed. Not much more,

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<sup>11</sup> *New Jersey Administrative Code*, “Distance Learning and Other Modes of Educational Delivery, § 9A:1-2.1 General program standards”

however, can be done without additional resources in terms of support and training staff. For example, Continuing Studies, which supports Pearson eCollege, the CMS platform for about 83 percent of the Rutgers courses currently offered online, has a staff of 1.5 available for faculty training.

Faculty also need to be aware that the initial preparation for a online course is far more labor-intensive than the preparation for a face-to-face course. With fully online courses the entire course basically needs to be done ahead of time—there’s no changing on the fly or just preparing week to week. In addition, student expectations of faculty availability are much greater in the online environment than in traditional courses. Faculty need to explicitly state when they will or will not be available online.

### **Limits on the Number of Courses Taken**

Some institutions have placed specific limits on the number of online courses that students in traditional (non-fully online) programs are able to take. Certainly one of the strengths of traditional programs is the “invisible college”—on-campus, beyond the classroom, learning experiences. However given the paucity of the current online enrollment at Rutgers, the committee felt that it was premature to consider any such overall limitations.

Departments offering online courses/sections should however define how many online courses they will accept for the major or minor in that department.

### **Online “Lab Fees”**

The committee discussed the advisability of charging students enrolled in online courses an “online course lab fee.” However as students in online courses are actually decreasing the strain on certain University facilities and services such as classrooms, parking lots, and buses the committee did not feel it appropriate to make such a recommendation at this time.

### **Students Attitudes**

The committee felt that it would be useful to survey those students who have taken online courses to determine their reactions and concerns. Student members of the committee are working with the RUSA Academic Affairs committee to develop survey questions. A survey will be distributed this Spring.

### **Course Assessment**

As with all courses, it is important that there be opportunities to assess individual online courses. Students in most Rutgers online courses are asked to complete Student Instructional Rating Survey forms. As online courses increase in departments, some overall assessment beyond SIRS should prove valuable. For example, in the Spring of 2010 Mason Gross, which is currently offering an array of introductory courses online, worked with the Division of Continuing Studies to design and administer a Quality Assessment of their online courses. As a result of the assessment, some courses were adjusted or revamped.



## Infrastructure

One of the strengths of both online and hybrid instruction is the opportunity to utilize media-rich instructional materials. The infrastructure needed to support these materials requires significant bandwidth. In the recent past this has been an area of serious concern at Rutgers. Every Spring for the previous three years the University had exceeded the amount of bandwidth that it had purchased, resulting in significant deterioration of system response time. This had an impact on the number of online classes that could be offered while maintaining an acceptable level of service; as well as the level of instructional technology, such as streaming video, that was available for use not only with online courses, but hybrid and web-enhanced courses as well. In the Fall of 2010 Computing was able to triple the amount of available bandwidth which should at least for the short term significantly alleviate this as a concern for online course expansion.<sup>12</sup>

Three primary Course Management Systems are currently in use at Rutgers. Of these, Pearson eCollege is most often used for fully online courses (205 sections/3867 students)<sup>13</sup>; Blackboard and Sakai (43 sections/439 students) account for about 17.3 percent of online sections.<sup>14</sup> While all three systems have their champions and detractors, there are concerns on the part of certain faculty that none of these meets the needs of their discipline. For example, Math faculty have difficulty with using CMS because none of the “big three” allows for the entering of equations. This is a major issue for Math and Physics faculty.

It is also important that all CMS platforms used at Rutgers be fully ADA compliant. While they are actively working toward compliance, currently Sakai 2.x is not fully accessible.<sup>15</sup>

## Bottom Line

The option to deliver courses online offers certain advantages to both the institution and to a portion of the student body. When done well it is an effective pedagogical platform. It is not clear however that it is in any way pedagogically superior to web-enhanced or hybrid classes; nor is it clear that it will actually save the institution money.<sup>16</sup> For faculty it is in most cases likely to be more labor-intensive than other modalities. And while it may offer an environment in which more mature, well-organized and motivated students can thrive, it may not always be appropriate for younger, less self-directed students.

There is also a concern about the loss of personal relationships between faculty and students, as well as the loss of mentoring, for students in an online environment. The entire “college experience,” the development of a sense of community, requires more than a virtual connection.

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<sup>12</sup> The University’s plan to phase out eden and have next year’s incoming students use Google Apps should further ease the situation as only those students in the dorms will be using University bandwidth.

<sup>13</sup> Fall 2010

<sup>14</sup> Blackboard and Sakai are however the most heavily used CMS for hybrid and web-enhanced courses.

<sup>15</sup> For current accessibility status see:

<https://confluence.sakaiproject.org/display/2ACC/Sakai%27s+Current+Accessibility>

<sup>16</sup> The usual recommendation for an effective online section is to cap enrollment at 25, for example. That may not always cover the cost of a program.

So while there seems to be little doubt that both the number of courses offered online and the number of students looking to take online courses will increase significantly in the next few years, we do need to proceed with caution. Departments need to ensure that courses being offered in the online format meet department standards and missions. Academic advisors need to be aware of the pitfalls of online courses for less-prepared and less-motivated students and advise accordingly.

### **Recommendations**

1. The University should proceed cautiously with the expansion of online course offerings with a view to some of the issues addressed below.
2. Departments and academic advisors should be made aware of the pitfalls of online courses for less-prepared and less-motivated students.
3. Syllabi for online courses should be available to students at the time of registration, and should include information not only on course content, but also information on what technologies are to be utilized, expectations about real-time interactions, requirements for online participation, and any other special considerations for the successful completion of that course.
4. In an effort to identify potentially interested faculty, a survey should be developed and distributed by Deans to all faculty and qualified (as identified by departments) graduate students, asking if they would be interested in teaching an online class and what class they might be interested in developing in an online format.
5. The University should provide for additional resources in terms of support and training staff to assist faculty in developing and offering new online courses.
6. Faculty training and online course development programs should include consideration of issues of academic integrity, including ways to recognize and reduce cheating.
7. The Academic Integrity Policy should be reviewed for appropriate modifications so as to include specific references to online courses.
8. Departments should develop guidelines for considering proposals to offer previously face-to-face courses in an online format. Considerations should include assessment of how learning goals are being met, and how the instructor will evaluate the effectiveness of the course.
9. Departments offering online courses/sections should define how many online courses they will accept for the major or minor in that department.
10. New (not previously offered as a face-to-face course) courses should follow standard procedures for new course approval, and be identified as an online course when presented to a curriculum committee.

## **Instruction, Curricula and Advising Committee**

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