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Student Perceptions of Dual-listed Courses

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Abstract

Academic departments regularly offer dual-listed courses in which one course has two course numbers, yet are taught in the same place, at the same time, by a single instructor, and in one department to undergraduate and graduate students. While universities discourage their use by subjecting such courses to more rigorous approval processes, academic departments often offer these courses to solve logistic and resource concerns. Little empirical research has examined students' perceptions of dual listed courses. This pilot study presents quantitative and qualitative findings (n = 781) of a survey sent to students enrolled at a Midwestern, land-grant University. The findings reveal that students perceive many benefits of dual-listed courses. Undergraduate students benefitted from exposure to graduate school expectations through interaction with graduate students. Graduate students benefitted from refreshing their knowledge of basic material and learning how to structure undergraduate courses for their future academic careers. Recommendations for improving dual-listed courses are provided.

Keywords: Dual-listed, paired, co-listed, perceptions, students.

The purpose of this research was to understand how graduate and undergraduate students perceive dual-listed courses. Students' opinions of dual-listed courses, the advantages and disadvantages of such courses based on past experiences, can help instructors and university curriculum committees create better, more worthwhile courses. Courses structured to facilitate substantial interaction between graduate and undergraduate students, that is, those with the characteristics of dual-listed courses, expand the breadth and depth of learning (Jayaram & Swartwout, 2012; Hoalst-Pullen & Gatrell, 2011; Miller, Witherow & Carson, 2012). But, how do students perceive these courses? Do students find courses with a diverse student body beneficial to their academic experience? And, to what degree do the benefits and challenges differ between graduate and undergraduate students? Reported and analysed within this article are the responses from an online survey conducted of graduate and undergraduate students enrolled at Iowa State University (ISU) during the spring semester 2013.

A dual-listed course is comprised of two courses with different course numbers that are listed separately in university catalogs and that restrict registration to qualifying students. In practice, a dual-listed course is a single course taught in the same place, at the same time, by a single instructor, and in one department to undergraduate and graduate stu-

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dents. Iowa State University's Biological Systems Engineering (BSE) 480/580, Twentieth Century Fashion History (TC) 356/556, and Community and Regional Planning (CRP) 416/516 are only a few examples of dual-listed courses. Undergraduates register for the lower course number; graduate students for the higher of the two course numbers. Such courses may also be referred to as "paired" and "co-listed" courses. The term "dual-listed" is, however, not interchangeable with "cross-listed", i.e., two courses offered by different departments that are taught together. Nor does dual-listed, as used within this paper, have anything to do with "dual-degree" or "combined-degree" programs, i.e., a program that allows students to enter an institution of higher education as an undergraduate and exit with a master's degree. However, many university departments that offer accelerated degrees – or those that combine an undergraduate and graduate degrees may regularly offer dual-listed courses.

Beyond dual-listing a course and allowing both graduate and undergraduate students to register, instructors often have the freedom to allow undergraduates to register for graduate courses, i.e., "with the instructor's permission." While we do not explore how students perceive this option, we recognize that these individual, instructor-initiated decisions also result in more diverse classrooms. However, in all likelihood the course structure or syllabus is not designed to account for these decisions, i.e. undergraduates accepted into graduate-level courses are not accommodated with different assignments, etc., and therefore this classroom model (that also results in a blended student body) is not the same as dual-listed courses.

Universities usually have specific procedures for approving dual-listed courses. For example, Appendix G of the ISU Graduate College Handbook specifies that the Graduate Curriculum and Catalog Committee must approve dual-listed courses, but does not indicate how course proposals are evaluated. Departments seeking approval of a dual-listed course are advised: "In reviewing proposals for dual-listed courses, this [Graduate Curriculum and Catalog] committee needs to understand the department's rationale for offering the course. When a department submits a request, an explanation should be given of the purpose served by the course and the criteria used by the department to determine if the course is suitable for dual-listing." This policy, and the policies of other universities, sounds flexible, but implicitly suggests that dual-listed courses will be subject to a more rigorous review; and thus, dual-listing is not encouraged.

Little empirical research has been conducted regarding dual-listed courses, although a review of course catalogs from diverse schools quickly reveals that such courses are offered widely. Because the literature on the subject is limited, we examine dual-listed courses by means of a pedagogical framework associated with interaction among diverse students as well as discussion of purposes for creating dual-listed courses. Following the framework, the survey methodology is explained and findings reported. The article ends with possible strategies for instructors assigned to teach dual-listed courses. Our research should appeal to instructors of dual-listed courses looking to better structure their classrooms and syllabi, and to university policy-makers tasked with determining whether dual-listed courses could play a larger role in the future of higher education.

Pedagogical Framework

A university or college may have both pedagogical and resource reasons for dual-listing a course. Dual-listing a course provides opportunities for students with different skill sets and life-experiences to interact. The greater the difference among students, the more the classroom resembles a real work environment. In 1988, Carnevale, Gainer, Meltzer, and Holland identified the following skills "employers want": ability to acquire knowledge, listening, oral communication, problem solving, creative thinking, self-esteem, goal setting / motivation, personal and career development, interpersonal skills, teamwork, negotiation, organizational effectiveness, and leadership. By 2012, that list of transferable core proficiencies had changed little, and included: basic literacy and numeracy skills; critical thinking skills; management skills; leadership skills; interpersonal skills; information technology skills; systems thinking skills; and work ethic disposition (Rosenberg, Heimler & Morote, 2012). Both the skills in 1988 and 2012 recognize that jobs generally require different people to work together creatively, productively and with the ability to negotiate interpersonal conflict.

Some course instructors attempt to hone collaborative and interpersonal skills with team-based discussions and problem-solving. Proponents of "team-based learning" go through great lengths to create teams of students that are diverse from a socio-cultural perspective (Sweet & Michealsen, 2012). Besides offering an opportunity to practice interpersonal communication skills, diversity among students facilitates more creative thinking and learning. Emphasizing the diversity of skills, Kotval (2003) recommends faculty "distribute the talent and assign students so that each team has individuals with leadership skills, writing skills, and design skills" (p. 303). Diversity in the classroom has positive results. Miller, Witherow and Carson (2012) demonstrate enhanced student learning in biotechnology laboratory-intensive courses when lab partners are of different academic levels. Similarly, an online course involving "virtual teams" was found to have promoted personal and professional exchanges in which students shared experiences and visions for the integration of technology into a variety of educational situations (Espinoza, Chambers, & Justice, 1998).

While the potential learning outcomes of dual-listing courses have not previously been documented, certain pedagogical approaches that can be applied in dual-listing, including team-based learning, peer teaching or tutoring (Hoalst-Pullen & Gatrell, 2011; Topping, 1996) and learning "soft skills" associated with juggling many responsibilities (DeBartolo & Hensel, 2004), are well-documented. The class formats that promote learning through extensive interaction among students and exposure to skills useful outside of the classroom are also preferred by students. From the students' perspective, the "millennial generation" values in class activities that build connections between students and linking academic material to students' lives (Kraus & Sears, 2008).

Financial and programmatic reasons, the need to stretch limited resources, response to low course enrollment as a result of fewer high school graduates, and recognition that graduate and undergraduates occasionally require similar course content, also drives departments to dual-list courses (Eppes, et al. 2008; see also for example Amata, 2005).

From a more positive perspective, Miller, Witherow and Carson (2012) make a case for dual-listing when universities want to offer highly specialized courses that may never attract large numbers of students, i.e. "specialized 'boutique' courses in which student enrollment may be low, but specialized equipment and faculty expertise is needed" (p. 331). This might also be a strategy for new or experimental courses that are being tested prior to their becoming a regularly offered course. Malin's (2007) recommendations for "paired courses" prepared for San Francisco State University's Graduate Council alludes to research designed primarily to guide internal university policy. The integrity of graduate education can be maintained in "paired courses" when graduate students are assigned work that asks them to engage in larger scholarly conversations within the field, provides opportunities for practicing leadership or the mentoring of undergraduates, requires advanced level writing, and engages students in graduate-only extended class discussions. The undergraduate response to courses that implement these recommendations is unknown.

Although little has been published documenting the negative aspects of dual-listing courses, universities appear to implicitly recognize the temptation of creating too many dual-listed courses. Many schools have policies that govern, and thereby limit, the practice of dual-listing (see for example, University of Wisconsin, Oshkosh, 2009 "Rubric for Dual-Level Courses MS in Biology and MS in Microbiology"; California State University San Marcos Undergraduate and Graduate Dual-Listed Courses Procedures). University policies generally make approval for dual-listing courses more rigorous to obtain than single listed courses by requiring additional review. Iowa State University limits the number of dual-listed course credits that may be used to meet the requirements for an advanced degree. Perhaps such policies are guided by overarching ethical concerns for students' welfare, but there exists little documentation to support that hypothesis. The authors argue that student perceptions could help guide decisions associated with dual-listing, and as such, contribute to the practice of teaching.

Method

During the spring 2013, an online survey was sent to all undergraduate (n = 25,553) and graduate (n = 4,607) students of Iowa State University (numbers based on fall 2012 enrollment) through SurveyGizmo. The questionnaire contained 16 close-ended and 5 open-ended questions. The questions included demographics: What is your gender; What is your current classification; What are your experiences with dual-listed courses: Have you enrolled in a dual-listed course; If you were a graduate student, which of the following additional assignments did you complete; and perceptions of dual-listed courses: Do you learn more or less when the classroom has students of various academic levels. The open-ended questions provided an opportunity for students to further respond to the positives, challenges, and perceptions of dual listed courses. The survey was developed independently by the three authors as derived from their understanding of best-practices in current scholarship of teaching and learning literature. The authors worked together to consolidate similar questions and clarify wording. An early version of the survey was pilot-tested with approximately 15 undergraduate and graduate students in one of the authors' classes. Based on their suggestions, the survey was further edited for clarity.

Recognizing that students receive many university-based notices and surveys (and electronic communications, in general), our expectations for a high response rate were low. We attempted to boost responses by keeping the survey short and by offering participants who completed the survey a chance to receive a $20 certificate to a local coffee shop through a random drawing of emails. Additionally, the initial request for participation in the survey was followed up with a reminder email, such that the survey was ultimately available for completion for a total of four weeks. As expected, the response rate was low. While this is a limitation of this study, we thus characterize this research as exploratory. Ideally, lessons learned from this research can help generate a more robust response rate in the future.

A total of 1,678 students completed or substantially completed the survey, representing an effective response rate of approximately 6%. Of those respondents, 781 students stated previous enrollment in a dual-listed course and, thus, their responses were used for the purpose of analysis. At the time the respondent took the dual-listed courses, 566 students were enrolled as undergraduates and 208 as graduate students. Of the total respondents, 262 were male and 417 were female.

Results were analyzed in Excel for frequencies. The qualitative results were analyzed through theme analysis. According to Leininger (1985) themes are identified by "bringing together components or fragments of ideas or experiences, which often are meaningless when viewed alone" (p.60). The authors first independently analyzed all student statements and placed them into themes. Next, the researchers worked together to compare, discuss, and finalize the placement of these themes utilizing a back-and-forth process of interpretation (Spiggle, 1994). The researchers achieved a 100% agreement level through this process. Although the response rate was low, the data analysis process revealed saturation in which concepts became redundant (Corbin & Strauss, 2008).

Findings

Three themes emerged from the analysis of the results, including:

1. Students responded positively to dual-listed courses;
2. The benefits of dual-listed courses stem from interaction among students and exposure to advanced ideas and more rigorous expectations;
3. Problems with dual-listed courses emerge when different student abilities are not taken into account, i.e., undergraduates complain of unreasonably high expectations, whereas graduates complain that courses are "dumbed down."

Recommendations for instructors of dual-listed courses derived from the survey are included in the paper. Survey questions and raw results are illustrated in Table 1.

When asked if they recalled learning from their classmates in a dual-listed course, 65% or 497 respondents stated yes. When asked if they recalled helping classmates learn, 62% or 475 students stated yes. The idea of helping one another learn is firmly rooted in best practices of learning. Respondent #931 provided an example of the positive interaction

Table 1. Survey instrument and complete results from the respondents.

Total Responses		1678					
QUESTIONS						RESPONSES	
1	While at Iowa State University, have you enrolled in a dual-listed course - for example CRP 416/CRP 516 - that has both undergraduate and graduate students in the same class and is offered by a single department (or program)? (These courses are often taught at the same time and in the same location). If yes, please proceed with this survey. If no, thank you for your time.					Yes	No
						781	897
2	Were you an undergraduate or graduate student at the time you enrolled in the dual listed course?					Undergraduate	Graduate
						566	208
3	If you were a graduate student when you were enrolled in the dual listed course(s), which of the following were additional assignments that you needed to complete. Please check all that apply.	Exams	Readings	Assignments/Projects/Presentations	Additional meetings with grad students	Additional meetings with instructor	Other
		101	135	212	43	34	6
4	Do you recall learning from your classmates?				Yes	No	Can't Recall
					497	186	82
5	If yes, from whom?			Graduate	Undergraduate	Both	Uncertain
				80	64	319	30
6	Do you recall helping your classmates learn in the classroom?				Yes	No	Can't Recall
					475	182	107
7	If yes, whom did you help?			Graduate	Undergraduate	Both	Uncertain
				31	163	254	25
8	Do you recall the course being different from courses where there were only grads or undergrads?				Yes	No	Can't Recall
					229	436	99
9	If yes, how was it different?					Open-ended responses	
10	Was interaction among students encouraged and/or required by the course instructor?	Encouraged		Required	Both	Not Encouraged or Required	Can't Recall
		375		36	216	88	88
11	Do you recall understanding the course material better or worse specifically because the students were a combination of grads and undergrads?				Better	Worse	Can't Recall
					272	51	414
12	Do you prefer being in a classroom with students at the same academic level?				Yes	No	Doesn't Matter
					258	68	413
13	If you had the chance, would you take a dual-listed course again?				Yes	No	Wouldn't Affect
					337	46	357
14	Do you learn more or less when the classroom has students of various academic			More	Less	About Same	Can't Recall
				243	73	386	35
15	Were you subject to higher or lower standards as a result of having classmates with different academic levels in the classroom?			Higher	Lower	Same	Can't Recall
				263	69	349	60
16	What pros/benefits have you experienced from taking a dual-listed course?					Open-ended responses	
17	What cons/problems have you experienced from taking a dual-listed course					Open-ended responses	
18	How would you change dual-listed courses in order to make them more effective?					Open-ended responses	
19	What other perceptions do you have about taking dual-listed courses?					Open-ended responses	
20	What is your current classification?			Undergraduate	Master's	Doctoral	Other
				453	106	104	0
21	What is your gender?					Male	Female
						262	417

between undergraduate and graduate students. She stated:

> The class I have taken was a mixture of different majors (e.g. planning, engineering, supply chain), thus, even as an engineering grad, I could still learn some basic ideas from planning/ supply chain undergrads. On the other hand, I could show them more advanced information, which allowed me to apply the knowledge I learn as an engineer.

Another opportunity for helping each other was provided by respondents #882 and #779. They stated:

> Often upper level students will ask questions which lead to further, insightful discussion which the undergrads would not necessarily have gotten to be a part of, but conversely, undergrads are more likely to ask questions of clarification which grad students would otherwise not feel like asking for fear of looking stupid.
>
> I found that the undergrads were more open about concepts they didn't understand and were more active in asking questions that maybe some of us grads were scared to ask because we thought we should know that already. Also, the class atmosphere is more fun and light with undergrads present- they remind us to keep science fun.

These responses clearly indicated that the interaction between undergraduate and graduate students provided valuable learning opportunities; leading to finding #2.

Finding 2: Benefits Stem from Interaction

The benefits of dual-listed courses related to interaction between students. An overwhelming 78% of students, or 627 out of 803, stated interaction among students was encouraged and/or required by the course instructor. According to respondent #228, the dual-listed course "gave us a more dynamic learning environment, allowing us to learn from the different backgrounds and experiences of graduate students." Respondent #258 indicated: "Other students have a variety of backgrounds that can be beneficial for learning or projects."

Undergraduates, in particular, reported benefitting from dual-listed courses. These benefits centered on insights as to what graduate work might entail, often ensuing in confidence that they could pursue graduate school. Typical comments were as follows:

> It was beneficial to have graduate students in the class, as it increased my learning experience and helped me network with students that can also give me advice for my future. (Respondent #116)
>
> The insight into graduate classes while an undergraduate student. This has helped me decide to pursue more education. (Respondent #171)
>
> I have seen what a graduate course looks like and this will help me decide if I want to go to graduate school in the future. (Respondent #322)
>
> Makes me feel like grad school would be something I could do. (Respondent #924)
>
> The dual-listed courses I have been a part of absolutely increased my urge to continue onto graduate school (it made graduate education less intimidating). (Respondent #1241)

Undergraduate students also wrote that dual-listed courses were more challenging than single-listed courses. These challenging environments were motivated externally (provided by the instructor) and internally (motivation to "keep up" with graduate students). The opportunity to "rise to the challenge" helped increase undergraduate students' confidence.

> Since I was held to a higher standard, it gave me a reason to work even harder so I could keep up with the grad students. (Respondent # 721)
>
> I felt challenged in the class, and determined to prove that I could compete with grad students as an undergraduate. And then proud when I did well in the class. (Respondent #498)
>
> When I'm surrounded by people who know what they're talking about and take their academic work seriously, it pushes me to work harder as well. (Respondent #1162)
>
> I was first frustrated that I was the only undergraduate and had to meet the expectations set for the graduate students. However, by midway through the semester I was confident in that my participation and work was meeting if not excelling that of some of the graduate students. (Respondent #1240)

Our findings are similar to those reported by Hoalst-Pullen and Gattrell in their 2011 study of a course involving both graduate and undergraduate students from different institutions. They wrote: "[Undergraduate] students found the experience of working with graduate students especially beneficial to their understanding of the discipline (by working with students with advanced knowledge and training within the discipline) and to their work ethic and final project results (by being challenged to work at a level expected for graduate students). For some undergraduate students, this led to a new, or renewed, interest in graduate school." (p. 259).

The stated benefits graduate students experienced were different from the undergraduates and often included learning how to structure undergraduate student courses for their future teaching careers and an opportunity to refresh their knowledge of basic concepts.

> I learn how simplify and clarify my instructions/explanation, allowing me to refine my teaching skills. (Respondent #397)
>
> Helped me realize that we take a lot of concepts for granted as grad students. Revisiting them helps immensely. Also it provides new perspectives on the topics being covered since the instructor tries to make it more accessible to everyone. (Respondent #1161)
>
> I got to interact and know some undergraduate students who were in my area of study. It was interesting to have their perspective on the material we learned. It al-

> so challenged me to make sure I understood the material well enough that I could explain it to them at their level. (Respondent #687)
>
> Being a graduate student in all dual-listed courses, I have learned from the undergraduates with basic material that I had forgotten or had not learned. It was nice to have them in the classroom so that some more basics items were covered or at least checked for understanding/comprehension. (Respondent #591)

Finding 3: Problems Stem from Not Taking Different Abilities into Account

While the majority of respondents expressed positive perceptions of the benefits of dual-listed courses, a minority expressed dissatisfaction. Undergraduate students' complaints included material that was too advanced and feeling left out of course discussions.

> I feel sometimes a little intimidated by the graduate students, almost inadequate compared to them. I also feel that I must be held to a far higher standard than classes with undergrads. (Respondent #1410)
>
> Having graduate students taking the same class can be intimidating. It also becomes scary when most of them are graduate students and when the instructor asks if everyone understands the material, since the graduate students make up the majority, a lost undergrad can become overlooked. (Respondent #1720)
>
> Cons were that the class was a lot harder because the standards and curve were set a lot higher. And undergrads were expected to test/write like grad students. (Respondent #375)

For the graduate student respondents, problems included "dumbed-down" instruction and increased time spent reassuring undergraduate students. Examples of such perspectives are as follows:

> The abilities of lower-level students dragged the class down. They were not as skilled, prepared or familiar with some of the issues, and we had to cover what seemed to be basic material to bring them up to speed. (Respondent #1380)
>
> There is some immaturity associated with having the younger students. More time was devoted to going over the rules multiple times/making sure everyone knew what the homework assignments were and understood them fully/etc. that often is a given and a student's responsibility in graduate level classes. (Respondent #99)
>
> There is a little bit more "housekeeping" that has to be done that takes up class time, reassuring undergrads they do not have to do additional assignments and explaining them to the graduate students that again takes away from discussion. Maybe with increased IT solutions (i.e. Blackboard) this time can continue to be reduced. (Respondent #1562)

Many of the respondents indicated potential ways to enhance the positives and mitigate the problems experienced in dual-listed courses.

What Students Recommend for Instructors of Dual-Listed Courses

The survey asked the students: "How would you change dual listed courses to make them more effective?" Many undergraduate students expressed interest in why graduate students returned to school, what their studies entailed, and the coursework and rigor required. Two typical suggestions that would result in undergraduates learning more about the "graduate school option" are as follows:

> I think from just general conversation the undergrads knew the grad students had more required of them in the course to qualify for graduate credits. It would have been nice for the undergrads to see the extra work, perhaps as a presentation from the grad students. I think it would have been insightful. (Respondent #1443)

> More interaction with graduate students. Presentations of their projects, backgrounds, mentoring if they have professional experience. (Respondent #898)

This finding suggests that instructors may consider requiring graduate students to share their projects with the undergraduate students in the course. Further, providing formal mentoring experiences may benefit undergraduates as they are exposed to graduate school opportunities and benefits to graduate students as they are provided opportunities to hone their skills as future educators. Respondent #680 specifically recommended that this interaction needed to be fostered by the instructor. He stated, "Dual-listed courses can provide opportunities for grads to 'teach' undergrads thus reinforcing the material for both parties, but that interaction is less likely to happen unless a professor enforces 'mixed' groups."

An additional recommendation for instructors was to provide increased opportunities for differentiation of instruction. This recommendation is in keeping with most university policies for dual-listed courses. Iowa State University's policy, for example, as described in the 2012-2013 course catalog suggests, "This extra work may take the form of additional reading, projects, examinations, or other assignments as determined by the instructor." The amount and type of "extra work" is at the instructor's discretion, as is the format of such courses. The present study asked graduate students to reflect on the additional work required of them (Table 2).

Table 2: Additional Work Required of Graduate Students in Dual-listed Courses.

Type of Additional Work	# of Respondents
Exams	101
Readings	135
Assignments / Projects / Presentations	212
Additional Meetings w / Grad Students	34
Additional Meetings w/ Instructor	46
Other	6

Of the 534 responses, 39% reported additional assignments, projects, or presentations and 25% indicated additional readings were required of graduate students in dual-listed courses. In their qualitative responses, several graduate students recommended additional rigor for their assignments, not just "busy work" as indicated by respondent #1149, "Have more separate work between levels, not just add to what the upper level students have to do."

Implications for Practice and Policy

Practical lessons gleaned from this research can be drawn directly from the recommendations survey respondents' offered. Organized thematically, the two major recommendations are that dual-listed courses meet the intellectual needs of a diverse student body and that instructors of dual-listed courses facilitate interaction among students. Pedagogical research recognizes that student learning is improved when student preferences are matched to pedagogical approaches (Gregore, 1979; Okebukola, 1986; Van Auken, Campbell & Wells, 2009), but of course, matching teaching methods with learning styles is more difficult when student difference is exaggerated. The survey reveals that students generally have a nuanced understanding of the complexity of these courses and perceive both their advantages and disadvantages. One of the respondents captures the difficulty of meetings the needs of diverse students perfectly:

> Undergrads, even very motivated and skilled undergrads, need a different level of support and direction from faculty than do graduate students. Similarly, masters students, particularly those who do not have the experience of conducting or presenting research, need different kinds of support and direction than do undergrads, master's students with research experience, and PhD students. PhD students should not be bogged down (or, worse, dumbed down) to classes that meet the needs of the lowest performing student. This requires a nimble faculty member. (Respondent #1380)

We recommend an initial assessment of learning styles, teaching that caters to a variety of needs, and a choice of student assessments. For example, pairing readings, with in class discussions, and the use of PowerPoint slides can satisfy the needs of students who learn by reading, those who respond best to visuals, as well as those who learn best through listening and discussing. Similarly, we recommend that students be offered a choice of assessments. For example, instead of only requiring the submission of a written essay to demonstrate learning, instructors can alternatively offer an in class exam or submission of a poster. As for facilitating interaction; the student-centered teaching literature has many well-researched and tested techniques that instructors could adapt (see for example Wright 2011; Estes 2004). Survey respondents' positive perceptions reinforce the best of what instructors are doing, i.e., encouraging discussion and differentiating aptitude in testing and grading.

In terms of implications for university policy, survey respondents suggest dual-listed courses enhance learning; therefore, dual-listing should not be subject to controls that deter based solely on administrative rigor or complexity. Review and approval processes

should likely examine not only departmental reasons for such courses, but ensure that syllabi both differentiate among students and incorporate schema for facilitating interaction. Differentiation may include (as many already do) additional requirements of graduate students, but also an explicit grading mechanism that subjects graduates and undergraduates to different standards. Options for facilitating interaction among students can be borrowed from the existing team-based, peer learning, tutoring, etc. approaches. A more thorough review of curriculum policy is needed to determine whether policies are actually improving the quality of such courses, or whether instructors are independently developing syllabi that intentionally cater to the needs of a diverse student body. Most importantly, similar to the research findings associated with peer resource learning (Grant & Manuel 1995), instructors of dual-listed courses must negotiate expectations and responsibilities regularly throughout the course. Realistic objectives and precise guidance pertaining to course goals and assignments can prevent misunderstandings. Students graduating today need the same critical thinking skills and interpersonal skills as they did twenty years ago. Properly designed dual-listed courses not only provide such skills, but can make learning more enjoyable.

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