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### The Syllabus Evolved: Extended Graphic Syllabi for Economics Courses

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# The Syllabus Evolved: Extended Graphic Syllabi for Economics Courses

## Abstract

An extended graphic syllabus is an artifact that contains limited jargon within a visual representation of a traditional course outline (i.e. a classic graphic syllabus) and incorporates visual elements into other parts of the traditional syllabus (e.g. course policies, assessments) in order to hold and focus the students' attention on the document. Its purpose is to give students a sense of the course's "big picture", to make their initial encounter with the course topics more meaningful, and to induce them to actually read and reference the syllabus throughout the semester. In addition to providing rationale for using extended graphic syllabi, this paper provides examples of classic graphic syllabi, describes how to create them, and offers examples of elements of extended graphic syllabi. Student perceptions of traditional and graphic syllabi are assessed.

## Disciplines

Economics

## Comments

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# **THE SYLLABUS EVOLVED: EXTENDED GRAPHIC SYLLABI FOR ECONOMICS COURSES**

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## **ABSTRACT**

*An extended graphic syllabus is an artifact that contains limited jargon within a visual representation of a traditional course outline (i.e. a classic graphic syllabus) and incorporates visual elements into other parts of the traditional syllabus (e.g. course policies, assessments) in order to hold and focus the students' attention on the document. Its purpose is to give students a sense of the course's "big picture", to make their initial encounter with the course topics more meaningful, and to induce them to actually read and reference the syllabus throughout the semester. In addition to providing rationale for using extended graphic syllabi, this paper provides examples of classic graphic syllabi, describes how to create them, and offers examples of elements of extended graphic syllabi. Student perceptions of traditional and graphic syllabi are assessed.*

*Keywords: syllabus, economic education*

*JEL Classification: A22*

A course syllabus is a staple in undergraduate education. Its fundamental purpose is to communicate the instructor's course design to students (Carnegie, n.d.). Practically speaking, it details the course topics, learning objectives, assessment and grading practices, schedule and due dates, as well as general course and school policies. The syllabus serves as a student's first introduction to a course and/or instructor and in many cases also serves as the student's first encounter with the discipline. Students' perceptions of the syllabus inform their first impressions of the course, which may linger throughout the remainder of a semester (Harnish & Bridges, 2011).

Syllabi tend to be laden with discipline-specific jargon that is either incomprehensible or meaningless to students at the start of the course (Nilson 2007). This is especially true in economics, which has both discipline-specific jargon and a prevalence of terms that are commonly used in everyday language but have a different, specific economic meaning (e.g. utility). Nettleship (1992) compared learning economics to a jigsaw puzzle. He argued that it is difficult to see the whole picture, but one needs to see it to understand where one is going. Each concept in economics is like a puzzle piece; students study the "color, shape, and size of each jigsaw piece. It is only when the students start to put the pieces together and to see the interrelationship they begin to appreciate the nature of the subject." (Nettleship, 1992, p. 69). After reading a syllabus, the introductory student is unlikely to see the "big picture" at that point. Furthermore, the student's first impression of the discipline and course may very well be confusion or overwhelm, and that negativity may persist throughout the course.

While a student's perception of a syllabus may set the tone for her semester, this does not mean the student has actually read the syllabus. To the chagrin of instructors everywhere, many students appear to have never read the document. Students are reading less in their daily lives (Nilson, 2007), and they entertain themselves with television, movies, social media, texting, video messages, and video games. Reading a multi-page, text-filled syllabus may well be a daunting task for some students. Also frustrating for instructors is using valuable class time on the first day to carefully go over the syllabus, only to have students display "syllabus amnesia" when it comes to course policies and due dates.

To give students a sense of the "big picture", to make their initial encounter with course topics more meaningful, and to get them to actually read and reference the syllabus throughout the semester, we advocate the use of an extended graphic syllabus. A classic graphic syllabus is a document that incorporates visual elements into the communication of material found in a traditional course outline. Nilson (2007, p. 26) defines a graphic syllabus as "a flowchart or diagram that displays the sequencing and organization of major course topics through the semester". It is a type of concept map, mind map, or advance organizer for the major topics of the course. Concept maps typically visually represent the hierarchical relationships within a discipline or subject (Willerman and Macharg 1991). Joseph Novak, the developer of the concept map, described them as "graphical tools for organizing and representing knowledge" (Novak & Canas, 2008, p. 1). They include concepts, which are typically enclosed in boxes or circles, with lines connecting the concepts delineating the relationships between them. The lines often have text written on them to describe the relationships (Novak & Canas, 2008). In a graphic syllabus, special attention is placed on illustrating how the course content fits together, which typically is not apparent to a discipline novice.

In this paper, we broaden the classic definition of a graphic syllabus. The *extended graphic syllabus* is an artifact that contains limited jargon within a visual representation of a traditional course outline (i.e. a classic graphic syllabus) and incorporates visual elements into other parts of the traditional syllabus (e.g. course policies, assessments) in order to hold and focus the students' attention on the document. Extended graphic syllabi may benefit both the student and the instructor. Some of the benefits include: reaching nonverbal learning styles, teaching students learning tools, encoding knowledge for long-term memory, revealing topical interrelationships within the "big picture", tightening course organization, and releasing faculty creativity (Bikitimirov & Nilson, 2003). An additional benefit for the instructor is that this type of syllabus may improve student perceptions of the course and therefore faculty evaluations. These benefits will be detailed in the Rationale section.

The remainder of this paper is organized as follows: we provide an example of classic graphic syllabi for economics courses, offer components of extended graphic syllabi, describe how to create them, present rationale and benefits for using extended graphic syllabi, and discuss the authors' experience with using extended graphic syllabi in their classes and student perceptions of the syllabi.

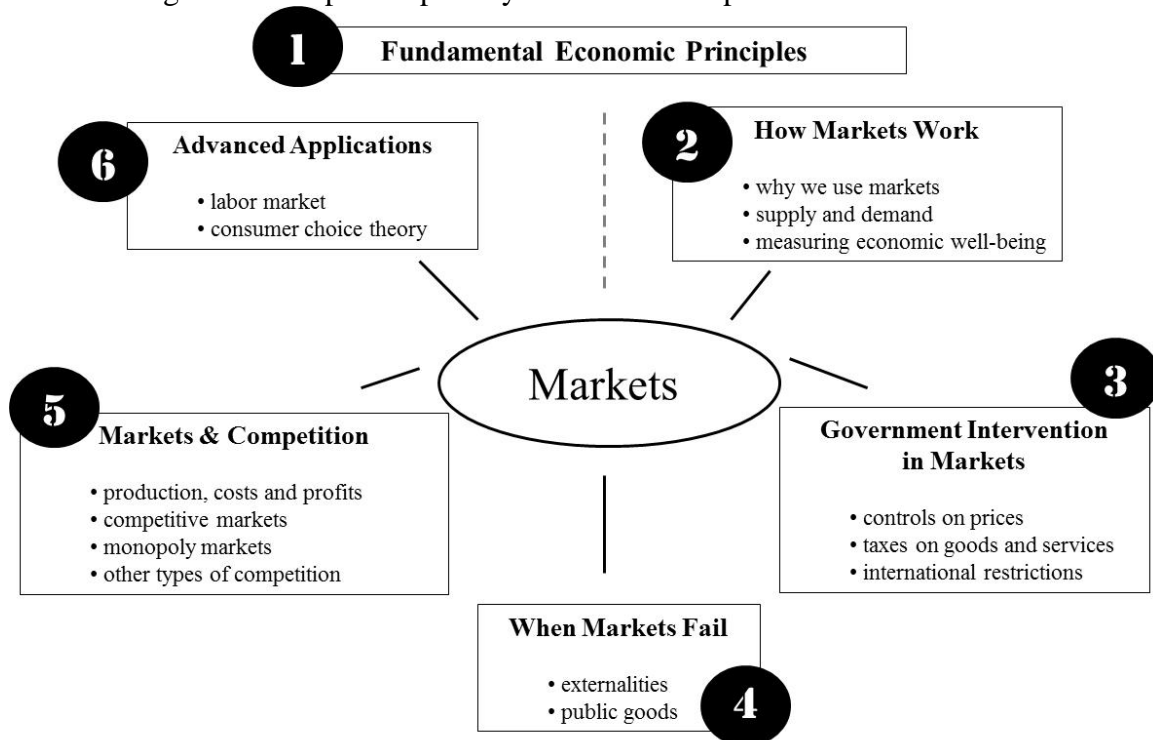
## **EXAMPLE OF CLASSIC GRAPHIC SYLLABUS FOR ECONOMICS COURSES**

Classic graphic syllabi incorporate visual elements into the communication of material found in a traditional course outline. They avoid the use of jargon and emphasize how the course topics fit together. Each graphic syllabus will be different. The graphic syllabus should illustrate

how the instructor, the discipline expert, makes links between the concepts. This will guide the discipline novice to see the connections and the “big picture”.

Figure 1 illustrates an example of a graphic syllabus for principles of microeconomics (additional examples can be seen at <http://tinyurl.com/GraphicSyllabusExamples>). At a glance, students can see the major course topics, how they fit together, and the approximate course schedule. The word “markets” is clearly displayed in the center, indicating the emphasis of the concept in the course. Nodes detailing various aspects of markets surround it: how they work, when they fail, government intervention, and competition. Large numbers indicate the sequence throughout the course. Relatively little jargon is used. Notice that the term “elasticity” is not present in the diagram. Elasticity is certainly covered in this class, but the term has no meaning to the discipline novice. The diagram indicates two chapters are devoted to supply and demand; omitted is the fact that the second chapter is elasticity. Not all jargon is avoidable, as evidenced by “externalities” appearing in Figure 1’s Box 4; however, the larger caption of Box 4 is “When Markets Fail”, which is language the discipline novice will understand.

Figure 1. Sample Graphic Syllabus for Principles of Microeconomics

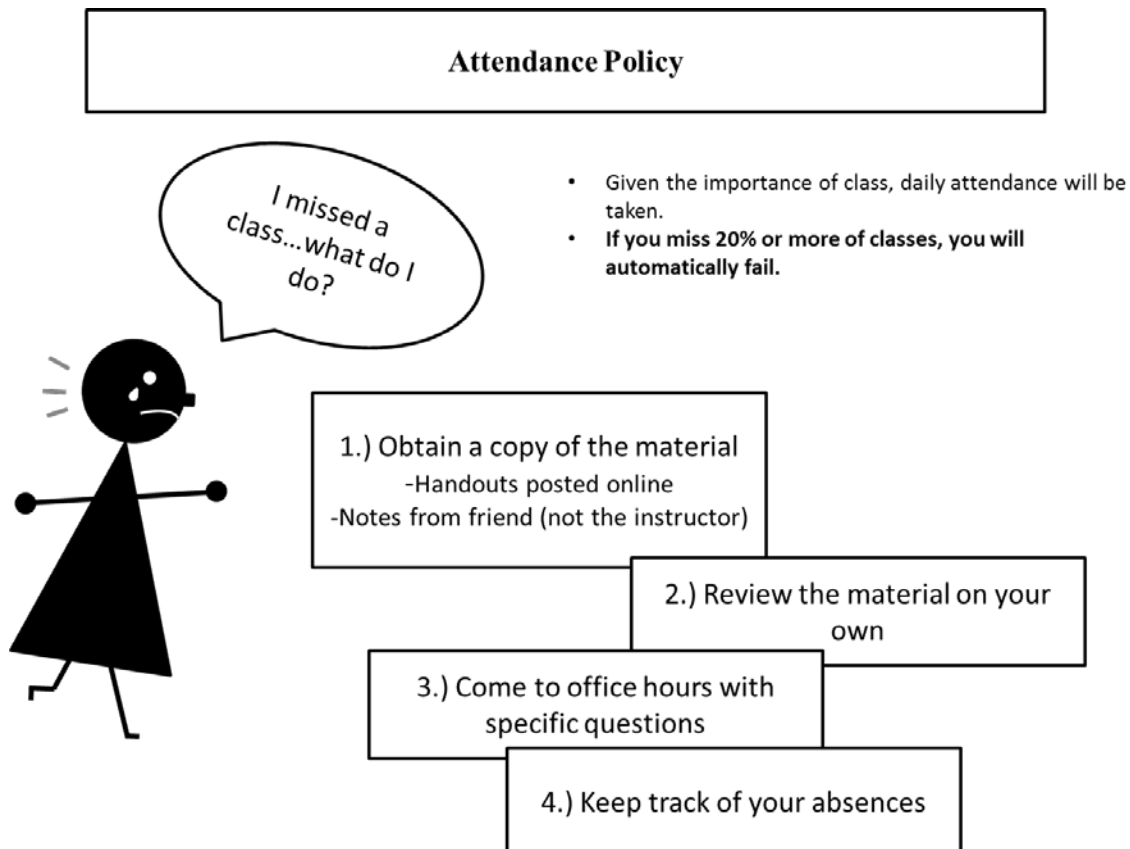


## THE EXTENDED GRAPHIC SYLLABUS

There are many ways to extend the graphical components to other portions of the syllabus. The goal of an extended graphic syllabus is not to replace every single instance of syllabus text with a graphic. It is to incorporate graphic elements into the syllabus in order to focus the students’ attention as they read it, to help them remember the different components, and to make it easier to reference throughout the semester.

Course-specific policies, such as an attendance policy, may have key roles in the culture of the classroom, but they may end up being glossed over in the reading of a long syllabus. Figure 2 illustrates an example of drawing attention to an attendance policy. While the policy would normally be about a paragraph of text, note that this graphic clearly outlines the step-by-step procedure students should follow if they miss a class. It clearly indicates the consequences of missing too many classes, but the graphic as a whole is meant to convey understanding and sympathy on behalf of the instructor.

Figure 2. Sample Extended Graphic Syllabus for Course Policy



The grade weights for different course components are a natural choice for a more graphic treatment. While a traditional syllabus may list the weights of the different components, seeing the grade in a graphical manner clearly shows the relative weights of the different components, especially for non-verbal learners or those unfamiliar with weighting mechanisms. Consider stacked bar charts, pie charts, or repetition of different shapes.

Graphic elements can be added to highlight any aspect of the course that the instructor wants to draw attention to. Learning objectives and course prerequisites are good candidates for this type of treatment. Learning objectives can be illustrated in flow-chart manners, showing how the objectives influence one another, or they could be incorporated into course outline or description from the classic graphic syllabus.

## CREATING A GRAPHIC SYLLABUS

The process for creating a classic graphic syllabus is straightforward and can be accomplished in a few hours' time. Begin by writing down the main topics or themes that the course includes, using as little jargon as possible for introductory courses. It might be helpful to pretend you are describing the essence of your course to a non-economist friend. Focus on the big picture, not the details.

Look back at the course outline contained in your existing syllabus. Map the main topics/themes you have identified back to the detailed course outline. As an example, Table 1 contains the list of topics from one author's original principles of microeconomics syllabus as well as how she categorized the major topics in plain language. There is no "right" way to view the course topics. The purpose is to communicate your understanding of the course topics to your students. To one author, the principles of microeconomics course is about markets: students learn how markets work, mechanisms for and effects of government intervention in markets, market failures, and firm behavior in markets. To another author, the emphasis is on households and firms interacting in and creating markets. Neither view is "right," and neither view is "wrong". These views represent the individual instructors' approaches to the course. What is important is that you give your students a "road map" for the course that you teach.

Original List of Topics from Syllabus	Author's Classification of Topics	Final Title in Syllabus (Figure 2)
Intro to Economics/Models		
Specialization & Trade Supply & Demand Elasticity Efficiency of Markets	Markets: Why we use them & how they work	How Markets Work
Price Controls Taxes Quantity Controls International Restrictions	Government Intervention in Markets	Government Intervention in Markets
Externalities Public Goods	Market Failure	When Markets Fail
Production Perfect Competition Monopoly Monopolistic Competition Oligopoly Factor Markets	Firm Behavior in Markets	Markets & Competition
Consumer Choice		Advanced Applications

At this point, you might identify topics or concepts that feel "tacked on" or you might identify areas that you would like to expand upon. In one microeconomics course, "consumer choice" is an example of a "tacked on" topic (Table 1). If the topic is department-mandated, take some time to brainstorm how to more fully integrate it into the course. If the topic seems out of place to a discipline expert, a discipline novice cannot be expected to make the connection between the topic and the course as a whole. In the case of a required consumer choice topic in a

principles course, one author chose to include an “Advanced Applications” category the graphic syllabus (Figure 1). When discretionary topics feel disjoint, consider elimination to free up time for more depth on other topics. This process will allow you to tighten up and better organize your course.

On scratch paper, sketch out some diagrams of how the main topics fit together. There are many ways to illustrate the various connections between course topics. Experiment! Try a variety of forms and see which are most appealing to you. Play with font (style, size, bold, italics), object shapes (rectangles, circles, stars, other polygons), line styles (arrows, dashed, thickness, curved or sharp corners), alignment (centered, linear, symmetric) and even colors (although this might be lost when you photocopy your syllabi, it would still be visible when posted as a digital file in the course learning management system). With a basic diagram in place, decide whether or not to add other information (e.g. simple descriptions, chapters, time lines, learning objectives).

Once the course description or course outline has been diagrammed, adding graphics to other parts of the syllabus is a natural extension: grading, learning objectives, other policies. To create graphics for grading, consider bar charts, pie charts, or other diagrams. Think about if you want the descriptions of the assessments along with the weighting, or if you prefer just the grade components and weights. Decide whether or not to add in other information (e.g. due dates, weights, policies). Question whether learning objectives feed into one another or if they part of a collusive whole. Determine if there are other policies that you believe would benefit from a more visual representation as opposed to a paragraph of text. Consider other policies that may be clarified with a graphic. Making the graphic “fun” with pictures may help show your sense of humor and/or assuage severity for sensitive policies (Figure 2).

Create an electronic version of your graphic syllabus either by scanning your hand-drawn diagram or by using the features of a word processing software. We created our graphic syllabi using standard PCs running Microsoft Word and PowerPoint. It can be helpful to create your diagram in PowerPoint, highlight each item in the diagram (Ctrl + A), copy the diagram (Ctrl + C), and then use “Paste Special” and “Picture (Windows Metafile)” to paste the image as a whole into your Word document. You can then drag the edges of the image of the diagram to resize it.

## **RATIONALE**

Extended graphic syllabi may benefit both the student and the instructor. The graphical nature enables instructors to reach different types of learners and helps the students to retain information by enabling learners to visually see the interrelationships between topics. Instructors, in thinking more critically about their courses, are able to tighten the course organization and be more creative. Instructors may also benefit from improved student perceptions which translate onto faculty evaluations.

Individuals have different preferences for how they receive information and different styles of processing it. One way of categorizing the modes of taking in information is with Fleming’s VARK questionnaire which measures preferences for visual, aural, read/write, and kinesthetic sources of information (available free online at [www.vark-learn.com](http://www.vark-learn.com)). In the VARK, the visual modality refers not to pictures but to “graphics” like relational diagrams. Students who have taken the VARK questionnaire (n = 40,674) chose an option corresponding to the visual preference 20.5% of the time and read/write 26.4% of the time (Vark-Learn, 2011). This suggests presenting the course information in a combination of text and graphics would reach a



significant number of our students in a way they prefer. With an increasing number of online courses as well as numbers of nontraditional students and nonnative speakers enrolled in courses, having a syllabus that reaches a variety of learners is increasingly important.

At many institutions, the principles courses are “service” courses that are taken by a wide variety of students, many of whom are not business nor economics majors. Allgood et al. (2004) surveyed non-recent graduates about what they remember studying in college economics courses. Students with non-business majors report remembering far fewer topics than the economics and business majors did. It is important to help all students learn topics for the long-run but perhaps especially so for the students who will take only a single economics course in their lifetime.

The use of limited-jargon graphic syllabi may help improve the long-term retention of material from our introductory courses for such students. Learning theory suggests that all people learn and process verbal and visual information in different cognitive systems (Nilson, 2007; Vekiri 2002). Graphics allow learning through dual-coding, visual learning, and conjoint retention. The essential idea behind these mechanisms is that people are able to interpret pictures and graphics and retain and comprehend more complex information from these visual aids than by reading. There are fewer “cognitive transactions” when processing a picture than when reading, because the mind processes the picture as a whole unit, while it processes individual words independently and consecutively (Vekiri, 2002). Clark and Paivio (1991) provide a review of the research on dual coding theory. Wills and Ellis (2010) review the extensive research on graphic organizers and conclude they help with dual encoding of information.

Learning is a complex process, and students do not learn new material in isolation from other knowledge. Instead, learners integrate new material with knowledge they already have (Ausubel 1960, 1963; Nilson 2007, 2010). Essentially, to learn new information, the mind needs a “big picture” in which it can put material into a context (Nilson, 2010). The graphic syllabus delivers the “big picture” to students, providing them with the context in which the new material can be stored, as concept maps provide students with the ability to assimilate new knowledge into their existing knowledge (Baitz, 2009). By seeing the “big picture” of the course on the first day of class, students are better able to visualize and to understand what they are learning and where they are going in the course as well.

As discipline experts, instructors readily see how individual course topics relate to one another. As discipline novices, our students need guidance to see the relationships. Referencing the graphic syllabus when a new topic is introduced can provide concrete context for how the topic relates to what has been learned and what is still to come; it can serve as both a review and preview.

Instructors may use the graphic syllabus as the students’ first introduction to the concept mapping or mind mapping study tool. Students will then have this example at the very beginning of the class for reference. Instructors can implement concept maps either as an active learning activity done in groups during class, or they could teach it as a study tool for students to use independently for studying for exams.

Research indicates that graphic organizers improve student learning and retention of new and unfamiliar material (Ausubel, 1960; Horton et al., 1993; Manoli & Papadopoulou, 2012; Willerman & Macharg 1991). The use of teacher-prepared concept maps in the classroom significantly improves student learning (Horton et al. 1993; Willerman and Macharg 1991). Economics students responded positively to the use of concept maps in Principles of

Microeconomics courses (Marangos 2003; Marangos & Alley 2007). Budd (2004) describes specific techniques for using mind maps in economics courses.

Instructors may benefit from creating a graphic syllabus as it helps them to re-focus on the course material and to think about it in a different manner. When writing a graphic syllabus, an instructor must explicitly think about the interrelationships of concepts taught in a manner in which she may not have thought about them before. The main goal is to convey the relationships clearly in a visual manner to students. By creating a graphic syllabus, the instructor is allowing the students to glimpse how an expert relates and visualizes the concepts in the course. To create the graphics, the instructor must take a step back and analyze what she is teaching, why she is teaching it, and how it relates to the rest of the material and the course in general. Through this process, instructors may realize they would like to reorganize the course, eliminate some material, and add in other material to address particular learning objectives. In such a way, an instructor may “tighten” her course. This process also helps to keep the instructor interested in the material and to breathe new life into the course, especially if it is a course the instructor has taught multiple times. Both of your authors found the act of creating a graphic syllabus to be very helpful in this regard.

Comments your authors have received from participants in a graphic syllabus workshop indicate that creating a graphic syllabus is a pleasurable experience. It is a way to “breathe new life” into the task of revising a syllabus for the coming semester. Both of your authors enjoyed creating their extended graphic syllabi and actually look forward to making revisions to syllabi each semester. It is a chance to be expressive in an otherwise dull document.

Finally, it is important for the syllabus to set the desired tone for the course, and the syllabus influences students’ perceptions about a course. Students perceived instructors whose syllabus was written in a warmer tone to be warmer, to care more about their students’ learning, to be more approachable, and to care more about teaching. These impressions may influence a students’ course evaluation at the end of the semester (Harnish & Bridges, 2011). Instructors who want to be perceived as caring about student learning and teaching, and who desire better course evaluations, may find the investment of transforming their syllabus will help them in this capacity. Since the graphic syllabus is a relatively new concept, early adopter advantages are likely to be present and persist for some time.

## DISCUSSION

In our courses, we present the graphic syllabus on the first day as a part of the course introduction and then reference it throughout the semester. It serves as a handy tool for reminding students of “where we’ve been and where we’re going” as we progress through the course material. In addition to the full syllabus, one author distributes a handout of just the graphic syllabus and asks her students to bring it to each class (students who organize their class material with a binder often place the graphic syllabus in the plastic cover on the outside of the binder). At beginning and end of each chapter, the instructor references the graphic syllabus to “review” where the course has been and “preview” where it is going.

One instructor has found the graphic syllabus to be especially useful in demonstrating concept mapping for students. After seeing the graphic syllabus as an example, students then make their own mind maps periodically throughout the semester in introductory microeconomics. In light of survey results, the instructor is considering having the students create their own mind maps, either individually or as a large group, of the course at the end of

the semester as an over-arching review and to help the instructor make any necessary changes to the existing graphics on the syllabus to enable future students to understand the course in a more clear manner.

In our principles courses, we have also used the graphic syllabus as a review exercise for exams. During the review, the graphic syllabus is displayed on the screen at the front of the classroom and students write down as much detail about each topic as they can remember without the aid of their notes. They also jot down questions they have. Then they reference their notes for those areas where they are “stuck” or where they have questions. After about 20 minutes of working this way, the remainder of the class is for question and answer. We have found this technique facilitates a very productive review session. Students are primed to ask questions on the topics on which they need the most instructor-assisted review.

In our previous experience with statistics courses, the progression from “descriptive statistics” to “probability” to “inferential statistics” has confused students. With the graphic syllabus, we have a concrete artifact to continually refer back to. This seems to have helped students to understand the linkages between the topics better and to have a clearer picture of the overarching goal of the course. We have also referenced the pie chart as an example of visual ways of representing data. It provides a tangible, real-world application that the students fully understand.

Anecdotally, students do seem to reference the extended graphic syllabus more often than they did our traditional syllabi. During class time, we have witnessed students (unprompted!) pull out the syllabus to look something up before asking a clarification on an upcoming due date or assignment. We have also overheard students telling other students where to find a particular piece of information, for example, “that policy’s the one with the three boxes”.

To assess students’ perceptions of the syllabus, one instructor created two versions of her syllabus: an extended graphic syllabus and a traditional text syllabus for principles of microeconomics. The extended graphic syllabus presented the course information in a concept map format, and the assessment, or grading, section presented the grade distribution in a pie chart format. (The extended graphic syllabus also included graphics for the attendance policy and the learning objectives, but these sections were not the focus of the survey assessment). On the same page as the pie chart, each assessment type was described in its own box alongside the relevant “slice” of the pie chart.

On the first day of class, the instructor randomly passed out the two different versions to the students but did not tell the students that there were two versions. The students silently read through the syllabus on their own, and they were instructed to review the course description and assessment sections in particular. They then filled out a survey aimed at gauging the students’ perceived understanding about the course and their interest in taking the course (Table 2). After completing the initial survey, the students were then provided with the other version of the syllabus and asked to read through this version silently. After reflecting upon both versions, the students filled out a second survey aimed at determining which version of the syllabus they believed was clearer and gave them a better understanding of the course and which version they preferred overall (Table 3). In addition to standard questions, there was also space for students to comment on why they chose their preferred version and to make any other comments. Finally, students were asked to turn in the version of the syllabus that they did not want to keep to refer back to throughout the semester.

Table 2 presents the results from the first survey. The survey was a Likert scale survey, with responses ranging from “Strongly Agree” to “Strongly Disagree.” For each question, the top

row represents the responses from students who received the graphic syllabus, while the second row represents the responses from those who received the traditional syllabus. Fourteen students received the graphic syllabus first, while 11 received the traditional syllabus first. While there are no major differences between students' understanding of the course description, it appears that students may be more comfortable with the course description from the traditional syllabus. Those who received the graphic syllabus students were more likely to disagree with the statements that they could explain in plain language what the course was about, that the course description gave them a clear understanding of how the topics fit together in the bigger picture, and that they were excited to take the course compared to those who received the traditional syllabus.

**Table 2**  
**Student First-Impressions & Understanding of Syllabi**

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neither Agree nor Disagree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	<b>Syllabus Reviewed</b>
<b>Course Description</b>						
After reading the course description, I understand what I'll be learning about this semester.	50%	50%	0%	0%	0%	Graphic
	55%	45%	0%	0%	0%	Traditional
After reading the course description, I can explain in plain language what this course is about.	14%	64%	14%	7%	0%	Graphic
	27%	55%	18%	0%	0%	Traditional
The course description gave me a clear understanding of how the topics fit together in the bigger picture.	54%	31%	8%	8%	0%	Graphic
	45%	36%	18%	0%	0%	Traditional
After reading the course description, I am excited to take this course.	43%	14%	21%	21%	0%	Graphic
	18%	55%	27%	0%	0%	Traditional
<b>Assessments</b>						
After reading through assessments, I understand how my grade will be determined.	100%	0%	0%	0%	0%	Graphic
	73%	27%	0%	0%	0%	Traditional
After reading through assessments, I understand the different components that will go into my grade.	93%	7%	0%	0%	0%	Graphic
	64%	36%	0%	0%	0%	Traditional
After reading through components, I understand what is expected of me this semester.	71%	29%	0%	0%	0%	Graphic
	73%	27%	0%	0%	0%	Traditional
I found it easy to understand how each component factors into my final grade.	79%	21%	0%	0%	0%	Graphic
	73%	27%	0%	0%	0%	Traditional

With respect to the assessment section of the syllabus, both syllabi contained information regarding the different assessment types and how much each type would count towards their final grade. The traditional syllabus listed the components along with their weighting, while the graphic syllabus presented the weighting in a pie chart. While all students, regardless of which version of the syllabus they received, either agreed or strongly agreed with all of the statements regarding the assessment section, in nearly all cases, those who received the graphic syllabus were slightly more likely to strongly agree with the statements. All of the students who received the graphic syllabus first strongly agreed that they understood how their grade would be determined, compared with 73% of those who received the traditional syllabus first. Ninety-three percent of the graphic syllabus students responded that they strongly agreed that they understood the different components that would go into their grade, compared with 64% of those who received the traditional syllabus.

The differences in the responses for the first survey could be because students at this point were unaware of how to read through a concept map as the instructor did not discuss the syllabi with them ahead of time. Also, students may not have had prior exposure to a concept map, and the familiarity of the traditional syllabus may comfort them. Similarly, students are much more familiar with pie charts, and the students who received the graphic syllabus appeared to find the assessment section of the syllabus clearer than those who received the traditional syllabus.

The second survey asked a variety of questions requiring the students to compare the two syllabi and choose which one they thought best answered the question. Table 3 presents the results. In 5 of the 9 questions, students preferred the graphic syllabus over the traditional. Fifty-six percent of students thought that the graphic syllabus gave them a better understanding of the big picture of the course, while 60% thought the traditional syllabus best explained what the course was about.

Oddly, while 60% of students thought the traditional syllabus was clearer in how their final grade would be determined, 72% thought the graphic syllabus more clearly explained the different components of their grade and 60% thought the graphic syllabus made it easier to understand the different components of their grade.

Interestingly, 84% of students thought the traditional syllabus was easier to understand, though 48% said they preferred the graphic syllabus overall and 40% preferred the traditional syllabus. Sixty percent of the students reported that the graphic syllabus made them more excited to take the course compared to only 32% who thought the traditional one made them more excited.

After the students filled out the surveys, the instructor explained the graphic syllabus to the students and reviewed the course expectations as is typical on the first day of class. At the end of the class, the instructor asked students to turn in the version of the survey they did not want to keep. Seventy-three percent of students kept the graphic syllabus over the traditional, indicating a revealed preference for the graphic syllabus.

<b>Question</b>	<b>Graphic</b>	<b>Traditional</b>	<b>Neither</b>
Which syllabus do you believe gave you a better understanding of the big picture of this course?	56%	44%	0%
Which syllabus best explains to you what the course is about?	40%	60%	0%
Which syllabus do you find easier to understand?	12%	84%	4%
Which syllabus do you think will be easier to refer to when you have questions about the course?	44%	44%	12%
Which syllabus makes it clearer to you how your grade will be determined?	40%	60%	0%
Which syllabus do you think clearly explains the different components going into your grade?	72%	16%	12%
Which syllabus makes it easier for you to understand the different components of your grade?	60%	36%	4%
Which syllabus makes you more excited to take this course?	60%	32%	8%
Which syllabus do you prefer overall?	48%	40%	12%

In sum, it appears that after students are lead through the graphic syllabus, especially if they have not had exposure to a graphic syllabus or if they are unfamiliar with a concept map, students generally prefer the graphic syllabus over the traditional syllabus. Students commented that the graphic syllabus was more eye-catching and interesting to look at and that it was easier to see the breakdown of grades and course topics. They liked that it was “quick and to the point” and “cut and dry”. One student reported that he preferred the graphic syllabus because it was “not cramped with information and it organized information that is appealing while forming a better scheme of the course.” A number of students who identified themselves as visual learners reported they liked the graphic syllabus better because they are visual learners.

Of those who preferred the traditional syllabus, a few students liked the details included in the traditional syllabus that were streamlined from the graphic syllabus. One student liked the ease of finding things in the graphic syllabus, but liked the details in the traditional syllabus. Another student commented that she thought sentences and paragraphs are easier to comprehend than graphs. One student commented that he originally thought the graphic syllabus was hard to follow, but after the instructor explained the graphic syllabus, he preferred the graphic version even though he indicated in the survey he preferred the traditional version.

The survey results indicate that the graphic syllabus may be better than the traditional syllabus in generating excitement for a course that many students are “forced” to take. It also clarifies the course for the visual learners, as theory predicted. Familiarity appears to influence students’ initial impressions. Once students understand concept or mind mapping, most students prefer the graphic syllabus.

This survey method had some limitations. First, due to timing constraints, the entire sample was limited to 25 students in introductory microeconomics courses only. Second, the

instructor did not want to bias students, and so she did not take the time to walk the students through the graphic syllabus. For many students, this was the first time they had seen a concept map. Since the graphic syllabus is the instructor's interpretation of the course, explaining the syllabus, especially if it is the students' first exposure to a graphic syllabus, may help alleviate some confusion and overwhelm on the first day. Future work calls for more empirical investigations on students' experiences with the extended graphic syllabus. An assessment could provide students with multiple graphic syllabi examples to see which they prefer and to determine how the graphics on the syllabus influence the student opinion. Another option is administering instruments that capture qualitative data on attitudes and perceptions from students viewing either a traditional course outline or a graphic syllabus in different courses. Finally, a "syllabus quiz" at the midpoint in the semester, to a class of students working with a traditional syllabus and a class working with an extended graphic syllabus, could help determine if students retain more information. An additional experiment would measure the effectiveness of using the graphic syllabus as a review for an exam, versus other review techniques.

The two major drawbacks to the extended graphic syllabus are that it is not accessible to students with visual impairments (i.e. incompatible with screen readers) and it may run afoul of rules requiring a common syllabus across sections of the same course. In light of this and our survey results, we recommend that instructors keep a traditional "all text" syllabus to comply with rules set forth by the Americans with Disabilities Act. The instructor can post both versions of the document on the course learning management system and can distribute the extended graphic syllabus in class. Providing a traditional syllabus will also make the class more accessible for those students who do reveal a preference for the traditional, familiar format syllabus. For instructors teaching courses with common syllabi, we recommend creating an extended graphic syllabus as a supplement to the official course document. This supplement would include the instructor's contact information, a classic graphic syllabus, and the elements of the extended graphic syllabus that the instructor wants to draw the students' attention to, perhaps the course learning objectives, the course grading weights, and important due dates. Both documents could be distributed in class and posted on the course learning management system.

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