

"Dope Syllabus": Student Impressions of an Infographic-style Visual Syllabus

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Received: 31 May 2021; Accepted: 6 August 2021

Despite its importance in the classroom, there has been limited research into the functional design of the syllabus as a means to motivate students to read and use it. This mixed methods study investigates student impressions of a 4-page full-length infographic-style visual syllabus. Identically formatted infographic syllabi were used in three courses with different student populations—a freshman seminar, a 300-level elective liberal arts course, and a 400-level minor elective course. Students completed a short questionnaire to capture their immediate reactions to the syllabus, followed by a longer questionnaire at the end of the semester. Across class standing, students strongly preferred an infographic syllabus and described it as easy to use, memorable, organized, and engaging. Students reported reading the infographic syllabus more completely, feeling less anxious about the course and more comfortable with its requirements due to the syllabus style. Recommendations for creating an engaging infographic-style visual syllabus are shared.

INTRODUCTION

A syllabus serves as a roadmap through a course, explicitly stating what the course is about, what students can expect to learn, what they will be asked to do, and how their work will be assessed (Matejka & Kurke, 1994; Parkes & Harris, 2002; Slatery & Carlson, 2005; Smith & Razzouk, 1993; Thompson, 2007). A learner-centered syllabus should also share how the instructor will guide and support student learning through the course and how students can succeed within the course (Eberly et al., 2001; Fink, 2012; Grunert O'Brien et al., 2008; Habanek, 2005). A syllabus can be instrumental in setting the tone for the course and motivating students to engage in learning (Grunert O'Brien et al., 2008; Harnish & Bridges, 2011; Parkes & Harris, 2002; Stowell et al., 2018) and can impact students' impressions of the course and the instructor based on the tone and phrasing used (Gurung & Galardi, 2021; Harnish & Bridges, 2011; Perrine et al., 1995; Waggoner Denton & Veloso, 2018).

Several publications highlight best practices in syllabus construction with a focus on content that should be included in a syllabus, yet there are far fewer suggestions on how to best organize and present the information effectively for the student audience. Recent research sheds some light on how aspects of syllabus format and design impact student impressions and syllabus use. However, few studies have examined students' impressions and use of visually formatted syllabi. The present study investigates the impact of a novel infographic-style visual syllabus format on student impressions and use in a classroom setting across courses and class standing.

THE VISUAL SYLLABUS

A visual syllabus makes use of images, formatting, color, and layout to create a more engaging document by promoting concurrent word-based and image-based processing, referred to as dual-coding (Mayer, 2020; Tetlan & Marschalek, 2016), which can lead to increased comprehension and retention of course information (Nilson, 2002). Visual syllabi can take several forms based on the extent to which visual elements are used within the design. A simple option is to include images of the instructor or the textbook as a means to provide some visual interest. To assess this option, Harrington & Gabert-Quillen (2015) compared student

impressions of syllabi varied by length and inclusion of images. They found no significant impact of the inclusion of images in their quantitative analysis, though qualitative analysis showed that students had a more positive impression of syllabi that included some visually engaging components. However, small visual elements added to a traditional syllabus may cause students to ignore those elements rather than be drawn to them (Leyro & Scharff, 2015), perhaps because of the "banner effect" (Burke et al., 2005), whereby readers use their previous experiences with specific types of documents to determine what information is important. This may explain why quantitative analysis did not reveal any significant differences attributable to the visual elements, as students may have considered the images as less important due to their past experiences. This suggests that the use of a more extensive visual syllabus design may be more impactful.

Graphic Syllabus

Most examples of visual syllabi discussed in the literature take the form of a "graphic syllabus" addendum introduced by Linda Nilson (Biktimirov & Nilson, 2003; Nilson, 2002). According to Nilson, a graphic syllabus is a "visual depiction of the instructor's conception of the organization of a field or subfield for the purpose of communicating it to students" (Nilson, 2007). This syllabus addendum is structured as a flowchart or concept map and clarifies the relationship between course concepts. This addendum is accompanied by a traditional syllabus, as Nilson suggests that space limitations would make it impossible to create a fully detailed graphic syllabus (Nilson, 2007; Mikhailova, 2018). Nilson (2002) suggests several advantages of using graphic syllabi for both the student and the instructor. Graphic syllabi can reach a greater number of students who may have a more visual learning style, reveal the relationships between course topics, expose students to concept mapping as a learning tool, and enable greater information encoding into long-term memory. They can also help instructors reorganize their courses for greater alignment and provide a creative outlet (Nilson, 2002), and allow faculty to create a more positive impression on students at the start of a course (Nilson, 2007).

Studies have shown that graphic syllabi can promote greater retention of syllabus information (Mocek, 2017; Yerian, 2009). Due to the nature of these studies, information about how students responded to the syllabi or how the graphic nature of the syllabi

bus addendum changed their use habits was not captured. To address this gap, Mikhailova (2018) distributed a graphic syllabus addendum along with a text syllabus in a soil science course and surveyed enrolled students to understand their impressions of each tool. Most students found the graphic syllabus addendum more helpful for understanding the course content and structure and reported a preference for the graphic syllabus. Half the surveyed students chose the graphic addendum as the syllabus that made them more excited to take the course. However, half the students also chose the traditional syllabus as a better reference point for questions about the course, pointing to the limitation of a graphic syllabus as defined by Nilson. While these studies show a positive impact of including a graphic addendum that visualizes the connections between course concepts with text-heavy syllabi, they do not investigate how a fully visual syllabus might add to these effects.

Sauer & Calimeris (2015) take the graphic syllabus addendum one step further by creating an “extended graphic syllabus” including visual representation and limited jargon for other sections of the syllabus. While they present a rationale for their design, as well as examples and a how-to guide, the authors do not include data on student perception and use of the syllabus. Furthermore, they too stop short of a syllabus fully designed in a visual style.

Newsletter-Style Visual Syllabus

The few examples of fully visual syllabi discussed in the literature are styled as newsletters, a design template often included in word processing software, with several popular articles offering suggestions on creating newsletter-style visual syllabi (Hangen, 2011; Klein, 2019). Typically, these syllabi contain the same written information that would be found in a traditional text-heavy syllabus with additional visual interest created through the use of color, formatting, and images.

Ludy et al. (2016) reported the first study investigating how newsletter-style visual syllabi affected student retention of syllabus content and their impressions of the course and instructor. Surveys were used to assess the impact of syllabus design on student impressions by comparing a text-only contractual syllabus with a newsletter-style learner-centered syllabus. Although participants viewing the newsletter-style syllabus scored higher on the survey questions testing retention of syllabus content, these differences were not statistically significant. Analysis of quantitative and qualitative data found the students responded more positively to the newsletter-style syllabus, finding it engaging and comprehensive. Students viewing the newsletter-style syllabus also shared stronger positive impressions of the course and instructor.

Expanding on this work, Lightner and Benander (2018) carried out a comparative analysis of four different styles of syllabi, including a newsletter-style visual syllabus. They collected student impressions of these syllabi through focus groups and questionnaires. When asked about the usability and look of the syllabus, students rated the newsletter-style syllabus as positively as a shorter text-only syllabus, however they reported a greater preference for the shorter syllabus. As suggested by Ludy et al. (2016), students in this study found the instructor more approachable when viewing the newsletter-style syllabus. Overall student feedback in this study suggests that the most important features of a well-designed syllabus include clear organization and navigability, brevity, and a neutral tone of phrasing.

By design, these studies compared syllabi that were not matched in their content. To isolate the impact of visual design, Overman et al. (2019) investigated student retention of identically worded 2-page syllabi presented either in a text-only or newsletter-style format. They found no significant difference in recall between syllabus styles. However, elements of the visual syllabus design could have impacted these findings. Color and font choices within the newsletter-style syllabus could have reduced readability, as some sections had low contrast between the text and background colors. In addition, other than a pie chart to display the course assessment information, there were no other visual elements (icons or images) used within the design, which would reduce the potential dual-coding of images and words linked to higher retention. Furthermore, the text-only syllabus had a clear organization with easy to find headings, which would make it relatively easy for students to navigate this document (Lightner and Benander, 2018). These factors may explain why Overman et al. did not find any gains in retention from the use of a visual format as designed. In fact, a recent study comparing matched text-only and visual syllabi in a classroom setting found students who had reviewed the visual syllabus retained information to a greater degree and thus scored higher on the syllabus quiz (Yarosh, 2021).

Nusbaum et al. (2020) investigated the role of syllabus design and language on students’ first impressions of a course and instructor using an experimental model and surveying participants. Similar to Overman et al. (2019), they did not find a significant impact of style or language on usability, clarity, or student retention based on the design of the syllabus, though the large amount of text within the visual syllabus may have reduced its dual-coding impact. In agreement with previous findings, the visual syllabus design promoted more positive impressions of the course instructor. Specifically, participants who read the newsletter-style visual syllabus in this study rated the hypothetical instructor higher on kindness, creativity, and approachability.

To understand how syllabus design and length can additionally impact student motivation and engagement, Ekachai and Kim (2019) conducted focus groups and an experimental study comparing syllabi of differing length with a text-only or newsletter-style layout. While they did not find any significant impact of the syllabus design on student engagement, the visual syllabus promoted greater motivation and positive impressions of the course and the instructor. Further analysis showed that a shorter visual syllabus promoted more positive impressions of the instructor than the longer syllabus, whereas the length of the text-only syllabus had no impact on students’ impressions of the instructor. Together, these studies suggest that the use of newsletter-style visual syllabi can enable faculty to promote more positive impressions of the course and instructor and may promote greater retention of syllabus information.

Infographic-Style Visual Syllabus

As mentioned, the newsletter-style visual syllabi utilized in these studies included large sections of text and made limited use of visual elements beyond color and font to promote greater engagement and retention. To understand how the use of a broader range of visual components would alter students’ response, a novel visual syllabus was created for this study in the style of an infographic. The word Infographic is a portmanteau of *information* and *graphic*. In his book “The Power of Infographics” Mark Smiciklas defines infographics as “a visualization of data or ideas

that tries to convey complex information to an audience in a manner that can be quickly consumed and easily understood” (Smicklas, 2012, pp.3). Infographics can combine text, images, illustrations, and data visualization together to tell a cohesive story with the aim of informing, entertaining, or persuading a chosen audience (Krum, 2013). Their unique design leverages our ability to quickly recognize patterns and trends within visual information (Majooni et al., 2018) and consolidate visual information into our memory more completely and for longer periods of time (Medina, 2008). Infographics are designed to be simpler to understand and faster to read than traditional text, making this an ideal format to share syllabus information with “digital native” Gen Z students (Seemiller & Grace, 2016; Shatto & Erwin, 2016).

A few resource websites offer examples of infographic syllabi (Clark, 2014; Fanguy, 2016; Newbold, 2017). One short article makes a case for an infographic syllabus as an appealing format for GenZ students, sharing a few student comments in support of their argument (Yousof, 2020). However, there are no other reports of the use of a full-length infographic-style visual syllabus in the literature.

To design the syllabi used in this study, I combined and adapted the advice shared by blog posts written by Clark (2014), Fanguy (2016), and Newbold (2017). I began drafting my syllabus in a Word document by following the syllabus content guidelines provided by Parkes and Harris (2002). They share a checklist of categories that should be included in a syllabus so it can fulfill its purposes as a contract between student and instructor, as a permanent record of the course, and as a learning tool to support student success. Unfortunately, including all their suggested categories with detailed explanations would result in a very long syllabus, and studies investigating the impact of syllabus detail and length show that students prefer syllabi of medium length that include clear course policies and expectations (Ekachai & Kim, 2019; Harrington & Gabert-Quillen, 2015; Jenkins et al., 2014; Saville et al., 2010) and typically use the document to identify upcoming coursework and keep track of deadlines (Calhoon & Becker, 2008; McDonald et al., 2010). As such, I chose to separate out detailed information about university policies, student support services, and assignment instructions from the primary syllabus. I shared these additional resources with students through our course learning management system (Moodle) and created brief overviews of important categories to include in the syllabus itself (see Appendix A for syllabus example).

Next, I revisited the information in syllabus categories that had not been truncated already. With the student audience in mind, I shortened and rephrased content from the original draft to create a text version of the eventual infographic syllabus. This process allowed me to highlight the choices available to students to customize their learning experience and share my own excitement about the course information (Nilson, 2007). As a final step before starting the design and layout, I identified parts of the syllabus that could be communicated through the use of images and icons, as well as information that could be turned into graphic representations, for example, representing the assignment grading scheme using a pie chart.

There are a number of software options available for infographic design and layout. Software programs like Piktochart, Canva, Venngage, Easel.my, Infogr.am, Visualize, Creately, or Visme are specifically developed for do-it-yourself graphic design. They all offer infographic templates with predetermined font, color, and

spacing choices. With many offering robust free options, using one of these softwares can save time and help design more professional infographics with limited design experience. Vector graphics based programs like Inkscape, Adobe InDesign, Adobe Illustrator, GIMP, and Microsoft PowerPoint can also be used to create infographics. These programs offer greater control over design choices and generate scalable files, but do not include easy to adapt templates—making them the more labor-intensive option.

I created the infographic-style visual syllabi used in the present study in Canva (www.canva.com) following principles of effective infographic design (Scott et al., 2017). Briefly, I used consistently formatted headings and subheadings to identify important sections of the syllabus and utilized graphical representations where appropriate. I made use of a limited color palette to promote engagement without creating visual overload. I also aligned elements of the layout to create appropriate visual balance while maintaining readability (Figure 1, Appendix A). The resulting syllabi were shared with students in this study. The goal of the present study was to extend the research on visual syllabus design by investigating how the use of a novel infographic-style visual syllabus affected students’ preferences and reading habits, and whether the syllabus design fostered greater engagement with the syllabus and more positive impressions of the course.

METHODS

Participants

Participants were students enrolled in three courses offered by the author at a small public liberal arts university during Fall 2020. All three courses were delivered online using a blend of synchronous and asynchronous learning modalities. Participants included 21 first-semester freshmen enrolled in a 100-level freshman seminar on the topic of science communication, 19 students enrolled in a 300-level liberal arts elective on the topic of neuroscience fiction in film, and 16 students enrolled in a 400-level neuroscience elective on the topic of neuropharmacology. One student was enrolled in both the 300 and 400-level courses and only completed the survey for the 300-level course. As such, there were a total of 53 possible participants for this study. 49 of the 53 participants (92.5%) completed the end of term survey and were thus included in the study (17 participants in the 100-level course; 19 participants in the 300-level course, capturing the entire course population, and 13 participants in the 400-level course).

The participants represented a somewhat equivalent distribution of class standing (Freshman: 30.6%, Sophomore: 20.4%, Junior: 22.5%, and Senior: 26.5%). The 100-level participants were all first-semester freshmen, though two participants had transfer credit placing them at sophomore and junior standing. The 300-level course participants consisted of 9 sophomores, 6 juniors, and 4 seniors. The 400-level course participants consisted of 4 juniors and 9 seniors. The demographics of participants by course are presented in Table 1. Overall, students who completed the survey were largely female (67.3%) and Caucasian (77.5%). Students who were enrolled in the courses but did not complete the end of term survey were not included in the study.

PROCEDURES

All procedures were deemed exempt by the Institutional Review Board at the University of North Carolina at Asheville.

Table 1. Demographic distribution of students based on course, class standing, and gender.

	100-level (n=17)	300-level (n=19)	400-level (n=13)	Overall (n=49)	Percent of Participants
Freshman	15	0	0	15	30.6%
Sophomore	1	9	0	10	20.4%
Junior	1	6	4	11	22.5%
Senior	0	4	9	13	26.5%
Male	3	9	2	14	28.6%
Female	13	9	11	33	67.3%
Non-binary	1	1	0	2	4.1%

Materials

The infographic-style visual syllabus was designed in Canva (www.canva.com). An existing infographic template was selected to determine font and color elements, then resized to 8.5x11 inches and redesigned in the format described above. Syllabi for all three surveyed courses followed the same format with minor adjustments based on course components, as shown on the first page (Figure 1; full infographic syllabus structure used in this study shared in Appendix A). The syllabus was posted as a PDF file within the course learning management system (LMS) Moodle page. A few weeks into the semester, I found that I could directly embed the Canva file into the LMS, allowing me to update the syllabus in real time as lessons and deadlines were adjusted. Once the embed was live, I notified students of the change via email and removed the PDF syllabus link.

Student Group Syllabus Review

Students were introduced to the course during a synchronous session for the first class meeting. This meeting included an explanation of how to use typical Zoom tools, participation guidelines, and short descriptions of the course topic and a concept map of the course content. Participants were then assigned to breakout rooms in groups of 3-4 to read and discuss the syllabus. They were given a link to the infographic-style syllabus in PDF form through the course Moodle page and a link to a Google document with the Student Group Syllabus Review (Huston, 2009), adapted from its original publication to add the question “What are your

thoughts on the infographic style syllabus?” Students were given 25 minutes to read through the syllabus and complete the review document. Because these responses were generated during a group exercise, they could not be attributed to a particular author and as such could not be sorted based on the class standing of the author. All participants completed this exercise.

Survey

Participants were asked to complete a survey on their course experiences at the end of the semester via Google Forms. The survey was created by the author and participants were provided in-class time to complete the survey. A link to the survey was also shared with participants that missed this class meeting. Students received 5 points towards their course grade for completing the survey.

After providing their consent to participate in this study, students completed a survey containing questions addressing different teaching interventions and knowledge questions specific for the course. The survey for all three courses contained an identical section addressing the infographic-style visual syllabus. This section contained 6 questions asking students to rate statements on a five-point Likert scale from strongly disagree (1) to strongly agree (5). Statement 1 and 2 addressed frequency (“I used the infographic syllabus frequently through the semester”) and ease (“I found the infographic syllabus easy to use & follow”) of syllabus use. Statement 3 and 4 addressed preference (“I prefer the infographic syllabus to a more traditional syllabus structure”) and depth of reading (“I read the infographic syllabus more completely compared to how well I usually read course syllabi”). Statement 5 and 6 addressed the impact of the syllabus design on students’ impressions of the course (“The infographic syllabus made me feel less anxious about taking this class” and “The infographic syllabus made me feel more comfortable with the requirements of the class”). The last question in this section was open-ended and asked students to “Comment on how the use of an infographic syllabus affected your experience with this course.”

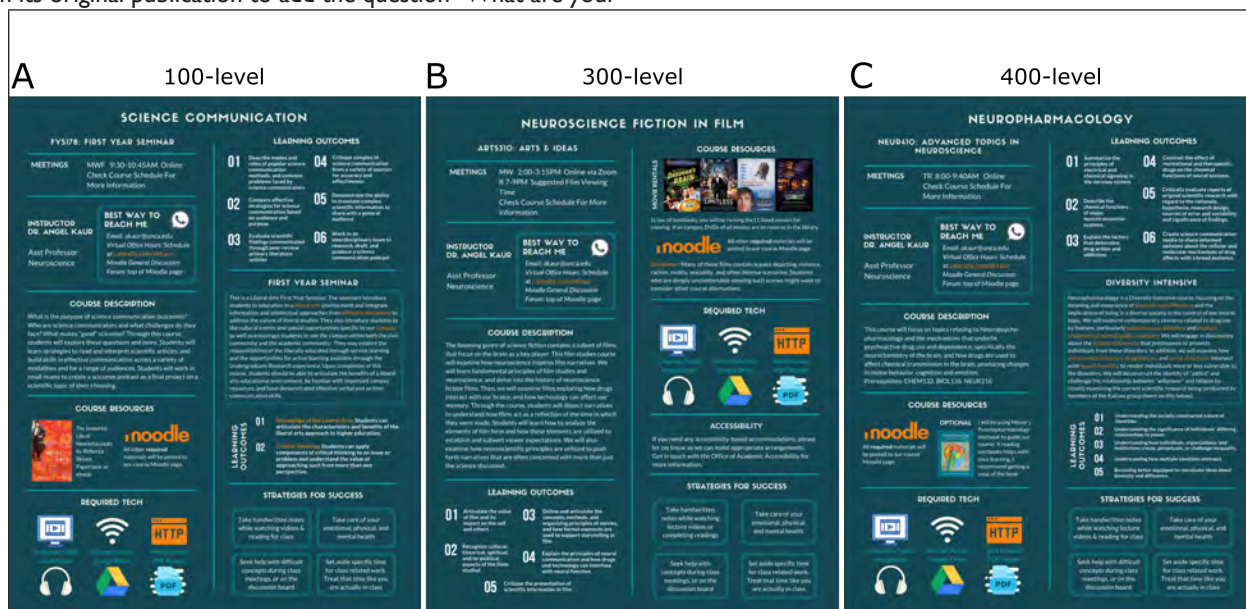


Figure 1. Infographic-style visual syllabus format. First page of infographic-style visual syllabi for each of the three courses surveyed (A. 100-level, B. 300-level, C. 400-level). All syllabi were full length (4 pages long) and followed the same design aesthetic and layout. An example of a full-length syllabus is included in Appendix A. Syllabi were designed using Canva.com.

Quantitative Analysis

Responses to survey questions 1-6 were sorted based on course and class standing for comparison. Statistical difference was calculated using the Kruskal-Wallis non-parametric test followed by Dunn's Multiple Comparison test with significance level set to $p = \leq 0.05$. All statistical analyses were performed using GraphPad Prism version 9.0.0 for Windows, GraphPad Software, San Diego, California USA, www.graphpad.com.

Qualitative Analysis

Participant responses to open-ended questions in the Syllabus Review document and the end of term questionnaire were analyzed using the qualitative methodology described by Ludy et al. (2016). Briefly, participant responses were split into individual idea statements, expressing a single thought or impression. The idea statements were sorted into categories described by Ludy et al.: usability, design features, course components, artistic impressions, and general statements. The general comments were then further analyzed for emergent themes.

RESULTS

Group Syllabus Review Qualitative Analysis

The final question on the Group Syllabus Review "What are your thoughts on the infographic style syllabus?" generated 17 responses across courses (5 for 100-level, 7 for 300-level, and 5 for 400-level). Forty-five idea statements were identified using the coding words described by Ludy et al. (2016). Sixteen statements came from the 100-level course, 15 from the 300-level, and 14 from the 400-level course. The idea statements were organized into five different thematic categories based on Ludy et al.'s description: usability, course components, design features, artistic impressions, and general statements. Based on data coding, two of the categories were renamed. "Design features" was renamed to "layout" since this category captured participant impressions of the structure, organization, length, and depth of the syllabus. Similarly, "artistic impressions" was renamed to "style" to reflect the participants' impressions of the aesthetics of the syllabus. This reframing of the categories more clearly differentiated the themes captured in each category. Overall, students responded very positively to the infographic style of the syllabus after their first encounter with it on the first day of classes (Figure 2).



Figure 2. Initial student response to syllabus design. Word cloud capturing student responses to the infographic-style visual syllabus in the group syllabus review document. Common words were removed and words that conveyed meaning together were collapsed into phrases. Size of word relates to frequency of use (Easy = 9, Very = 6, Look = 5, remaining words at frequency of 3, 2, or 1 as shown by font size). Created using Wordart.com.

Usability

This category included statements that referred to the syllabus as easy to read, use, and follow. Nine individual idea statements fit into this category (5 from 100-level, 4 from 300-level, 0 from 400-level). Seven statements described the infographic syllabus as "easy" to read, understand, and follow. One statement described it as "user friendly :)", while another said, "All my concerns were answered." There were no negative comments related to usability.

Layout.

This category included comments referring to the length, layout, depth, and organization of the syllabus. Nine individual idea statements were coded into this category, 4 from the 100-level, 1 from the 300-level, and 3 from the 400-level course. Four of the statements commented on organization, 2 described the syllabus as "informative", 2 as specific/detailed and one noting it's "not too long." One team highlighted the organization by sharing that "the little chunks makes it easier to look at." There were no negative comments related to design features.

Course Components

There were only 2 comments that fit this category as described by Ludy et al., capturing the students' impression of the course components based on the syllabus. Both came from groups in the 100-level course and agreed that the course structure was "well thought out."

Style

This category included comments referring to the style and form of the infographic syllabus. Twenty-two of the total 45 idea statements fit in this category (6 from 100-level, 7 from 300-level, 9 from 400-level). Eleven idea statements focused on the aesthetics of the infographic syllabus, referring to it as eye-catching, colorful, engaging, interesting, and entertaining, with one saying "[it] isn't just a simple page of paper with small details." Three statements referred to the syllabus as fun to read. A participant in the 400-level course shared "I like that it is entertaining, but still clear and informative."

The remaining 7 statements within this category captured students' enthusiasm for the infographic syllabus. A group of participants in the 100-level course shared "it's amazing and we all love it!!" Similarly, a group in the 300-level course wrote "Very Nice! Awesome!" and one in the 400-level course said "We love it! We think it's captivating."

General statements

Most of the idea statements fit the other 4 categories, leaving only 5 comments in the general section (1 from 100-level, 2 from 300-level, 2 from 400-level course). All these statements highlighted students' impression of the instructor. The freshman group statement noted "It shows the style of the course and how it will be taught." Three of the statements centered on the theme of time and effort spent by the instructor.

"This must've taken some time!"

"We appreciate the effort"

"Shows that [instructor] takes time to help [their] students understand the course and takes pride in [their] work!"

The final general comment came from a 400-level student group who decided to grade the infographic syllabus in their syllabus review document, giving it a “10/10.”

End of Term Survey Quantitative Results

All 6 questions within the Likert scale captured changes experienced by students in response to the use of an infographic-style visual syllabus for the course, with higher rates of “agree” and “strongly agree” responses suggesting a positive impact of syllabus design. To determine the overall effect of the syllabus design, participant Likert scale responses were summed over all 6 questions to create a composite score, with a maximum possible score of 30. The median of the composite scores was 26 and the mode was 30, with 25 of the 49 respondents having composite scores between 26-30 (Figure 3A). Overall, students responded positively to the infographic syllabus across all questions (Figure 3B).

Frequency of Use

Participants reported using the syllabus through the semester, but only 57% reported doing so at a high frequency (Figure 3B, 4). There was no significant difference between responses gathered based on class standing of the participants ($p=0.4343$). Comparisons of these data sorted by course showed a statistically significant difference between the 100-level and 300-level course ($p=0.0383$), with the 100-level participants reporting less frequent use of the syllabus.

Ease of Use

As suggested by the comments in the Syllabus Review, 92% of participants agreed with the statement “I found the syllabus easy to use and follow” (Figure 3B, 5). There was no significant difference between participant responses based on class standing ($p=0.3144$) or course ($p=0.6076$).

Preference

A high proportion (88%) of the participants reported a greater preference for the infographic-style visual syllabus rather than a traditional text-based syllabus (Figure 3B, 6). Participant responses showed no statistically significant differences across class standing ($p=0.8964$) or course ($p=0.8435$).

Reading Depth

Overall, 71% of participants agreed or strongly agreed with the statement “I read the infographic syllabus more completely compared to how well I usually read course syllabi” (Figure 3B, 7). There was no significant difference between participant responses based on class standing ($p=0.7372$) or course ($p=0.5307$).

Effect on Course Anxiety

When asked whether the syllabus design made them feel less anxious about taking the course, 77% of students agreed or strongly agreed (Figure 3B, 8). Participant responses showed no statistically significant differences across class standing ($p=0.6485$) or course ($p=0.5597$).

Effect on Comfort with Course Requirements

In response to the statement “The infographic syllabus made me feel more comfortable with the requirements of the class” 84% of students agreed or strongly agreed (Figure 3B, 9). There was no significant difference between responses gathered based on class standing of the participant ($p=0.7129$) or course ($p=0.5278$).

End of Term Survey Qualitative Results

All participants answered the open-ended question on the end of term survey, “Comment on how the use of an infographic syllabus affected your experience with this course.” Seventy-seven idea statements were identified using the coding words as described above. Twenty-four statements came from the 100-level course, 34 from the 300-level, and 19 from the 400-level course. The

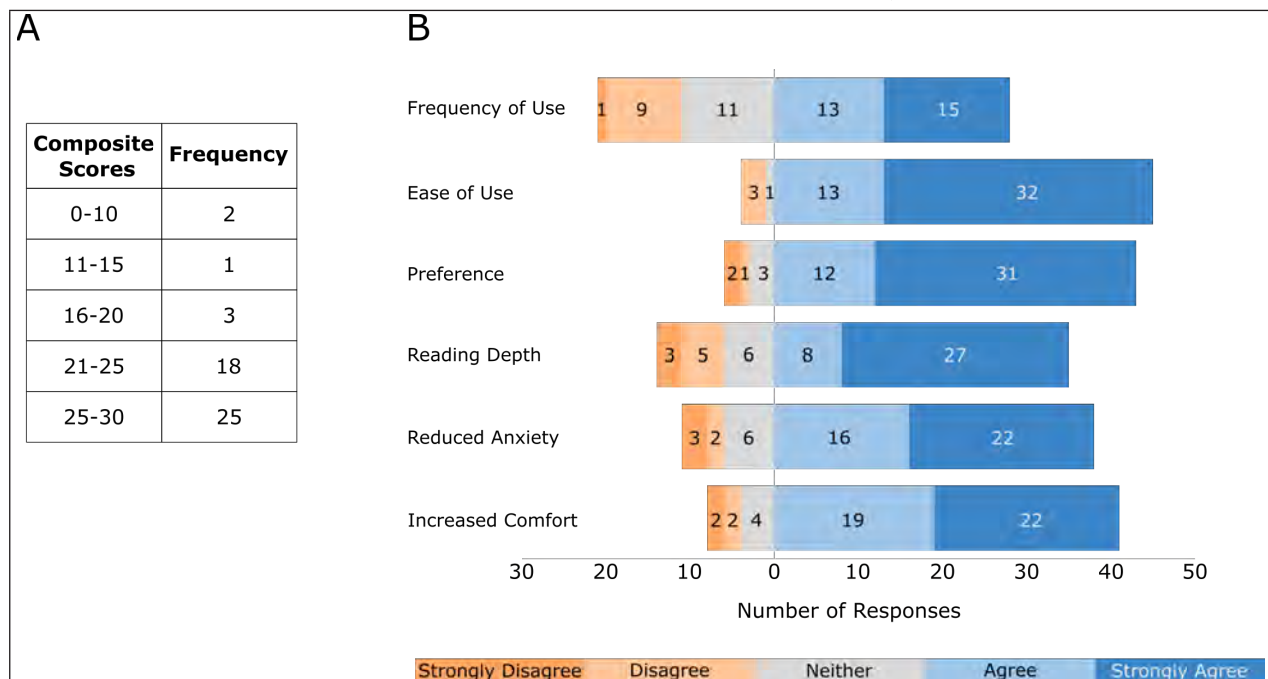


Figure 3. Students responded positively to the infographic-style visual syllabus. (A) Composite score frequency shows 43 of 49 participants responded positively to the infographic-style visual syllabus. Participant responses over all 6 Likert scale questions were summed to create a composite score per participant, then frequency for score intervals was calculated. Ratings were made on a 1 (Strongly Disagree) to 5 (Strongly Agree) Likert scale, with the highest possible composite score being 30. (B) Combined distribution of responses to each Likert scale question by all surveyed participants. Frequency shown as number of responses ($n=49$ for each question).

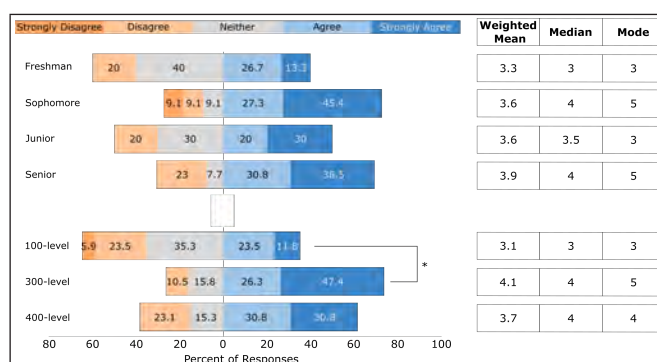


Figure 4: Frequency of use. Student responses to the statement "I used the infographic syllabus frequently through the semester." Ratings were made on a 1 (Strongly Disagree) to 5 (Strongly Agree) Likert scale and were sorted by class standing and course. Response frequency shared as percent of total responses per category (* $p < .05$).

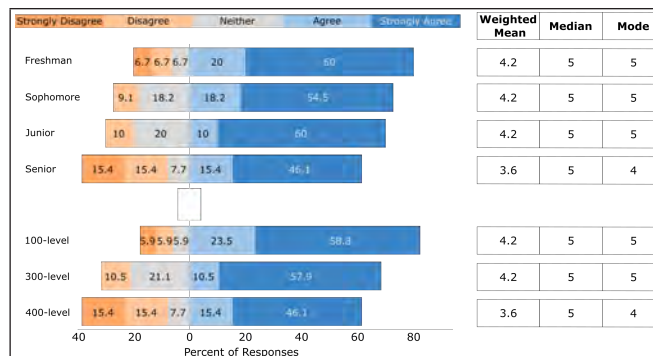


Figure 7: Reading depth. Student responses to the statement "I read the infographic syllabus more completely compared to how well I usually read course syllabi." Ratings were made on a 1 (Strongly Disagree) to 5 (Strongly Agree) Likert scale and were sorted by class standing and course. Response frequency shared as percent of total responses per category. There were no significant differences across courses or class standing.

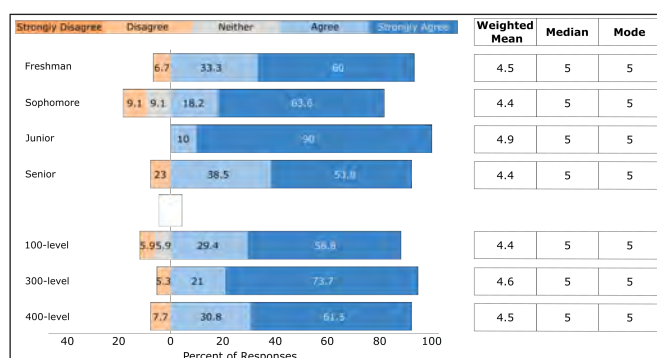


Figure 5: Ease of use. Student responses to the statement "I found the infographic syllabus easy to use & follow." Ratings were made on a 1 (Strongly Disagree) to 5 (Strongly Agree) Likert scale and were sorted by class standing and course. Response frequency shared as percent of total responses per category. There were no significant differences across courses or class standing.

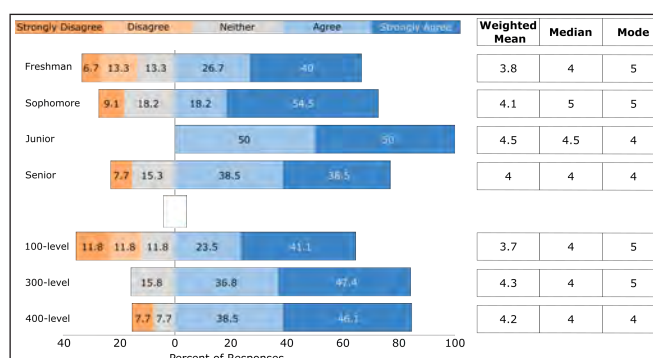


Figure 8: Effect on course anxiety. Student responses to the statement "The infographic syllabus made me feel less anxious about taking this class." Ratings were made on a 1 (Strongly Disagree) to 5 (Strongly Agree) Likert scale and were sorted by class standing and course. Response frequency shared as percent of total responses per category. There were no significant differences across courses or class standing.

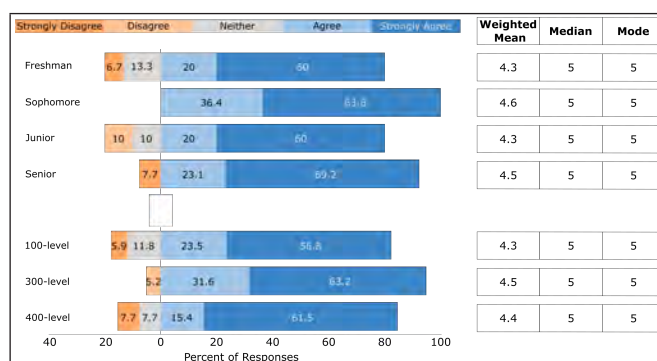


Figure 6: Preference. Student responses to the statement "I prefer the infographic syllabus to a more traditional syllabus structure." Ratings were made on a 1 (Strongly Disagree) to 5 (Strongly Agree) Likert scale and were sorted by class standing and course. Response frequency shared as percent of total responses per category. There were no significant differences across courses or class standing.

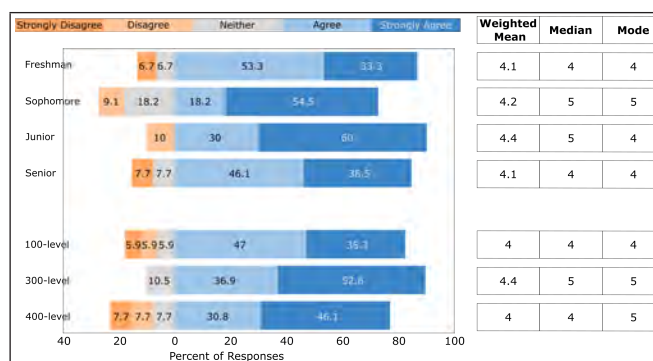


Figure 9: Effect on comfort with course requirements. Student responses to the statement "The infographic syllabus made me feel more comfortable with the requirements of the class." Ratings were made on a 1 (Strongly Disagree) to 5 (Strongly Agree) Likert scale and were sorted by class standing and course. Response frequency shared as percent of total responses per category. There were no significant differences across courses or class standing.

idea statements were organized into the five thematic categories described above. Because of the phrasing of the question and its placement in a larger end of term survey, there were no identifiable comments about course components. Overall, students remained enthusiastic about the use of the infographic-style visual syllabus, with only 2 negative comments recorded.

Usability

Twenty-six individual idea statements fit into this category (10 from 100-level, 10 from 300-level, 6 from 400-level). Twenty-one statements described the infographic syllabus as “easy” to read, understand, and follow. One student commented on the effect of the syllabus design on their reading depth: “The infographic syllabus is more fun and interesting, and easier to follow than a traditional syllabus. With a normal syllabus my eyes start to swim and I skim over a lot more; the infographic syllabus is way more digestible.” The style also impacted student motivation to use the syllabus, as illustrated by this student response “I loved it. Super straightforward and easy to read. It’s difficult for me to find the motivation to read through and come back to syllabi for other courses, especially if they’re on Microsoft Word or Google Docs, it’s usually so daunting.”

Another comment further described how the infographic style increased usability while also reducing frequency of syllabus use: “Instead of taking notes on the syllabus that I would constantly have to come back to, I could just easily find the section that I was looking for by clicking on the document. Things were easier to read, find, and remember.”

Two students reported finding the syllabus structure confusing, though one of them added, “it was beautiful.” The remaining three statements reported an appreciation for hosting the syllabus as a live document so course changes could be updated easily for students to see.

Layout

As compared to the beginning of term syllabus review, a much larger proportion of participant comments in the end of term survey addressed the layout of the syllabus. Twenty-four individual idea statements were coded into this category, 8 from each course. Six comments described the syllabus as informative and easy to navigate, “It was easy to find the information I was specifically looking for.” More than half the statements described the syllabus as useful for keeping pace with upcoming due dates (14 statements), as illustrated by this student comment “I read the full syllabus (which I normally don’t do), and kept better track of deadlines.” The remaining three comments noted that the syllabus design helped students understand the expectations and workload for the course. Interestingly, despite the use of limited text due to the nature of the syllabus design, one student found that “the explanations for assignments were more thorough than with a traditional syllabus.”

Style

This category included comments referring to the style and form of the infographic-style visual syllabus. Twenty-three idea statements fit in this category (6 from 100-level, 14 from 300-level, 4 from 400-level). Ten idea statements focused on the aesthetics of the infographic syllabus, referring to it as engaging, interesting, and entertaining, with one saying “I mean, I loved it ... Things like font, design, and art really do make a difference when you are taking something in.” Another student shared the impact of an engaging

syllabus on memory: “I can visualize the information much better. I have stronger memories of our course syllabus than any other.”

Idea statements shared by 5 participants noted that the infographic style made the syllabus and the course, “less daunting,” illustrating the impact of the syllabus design on lowering anxiety and increasing comfort for students. As one student shared, “[The infographic syllabus] made the course seem less intimidating, like in comparison to my [other course] syllabus where it didn’t seem like the instructor cared, and the white page made me feel unsure of myself,” suggesting a positive impact of syllabus design on student comfort and perception of the instructor.

As with the syllabus review, several statements captured students’ continued enthusiasm for the infographic syllabus. A total of 9 statements fit this description, with one student saying “It was so nice to have a syllabus so colorful and easy to look at ... I would highly prefer this to any other class [syllabi],” while another simply shared “dope syllabus.”

General statements

As with the syllabus review, most of the idea statements fit the other 3 categories, leaving only 5 comments in the general section (2 from 100-level, 2 from 300-level, 1 from 400-level course). The dominant theme in these statements was a justification for not using the syllabus more. Students pointed to using supporting course materials instead, “I found looking at Moodle was more helpful and accurate.”

One student noted the value of the infographic syllabus even if a student never goes back to it: “I didn’t really look back to the syllabus after the day in class that we discussed it, but it definitely made me feel better about the class as a whole.” This sentiment was echoed across statements in other categories, with students sharing that the syllabus style made them feel excited (3 comments), made the course less intimidating (5 statements), and reduced their stress levels (6 statements). These statements help contextualize student responses to questions 5 and 6 on the Likert scale survey.

Student Syllabus Use & Barriers to Traditional Syllabus

Participant responses presented insight into how students use the syllabus and what they find challenging about a traditional syllabus. A total of 22 comments across class standing/course showed how students typically use the syllabus. Of these, 3 comments generally described going to the syllabus to quickly find course information, while another 4 described using the syllabus to understand course expectations. The remaining 17 statements suggested that students most often use the syllabus as a reference document to find information about due dates for assignments and other coursework, as suggested by McDonald et al. (2010).

Students shared barriers they face when using a traditional syllabus through their comments as well, with a total of 23 comments across class standing/course offering insight on this topic. Students reported finding it hard to read and process traditional syllabi due to the lack of visual structure and large amount of text. One student described reading a traditional syllabus as “searching through a sea of the same words,” while another shared, “Sometimes important information would get lost in the black paragraphs on white pages so I couldn’t keep up with certain important bits of [information].” This comment highlights ways in which a text-heavy traditional syllabus is ill-suited to the students’ preferred use of a syllabus as a reference document.

Other students agreed with this problem, reporting that they find it hard to identify important information, track course progress, and understand course expectations when using a traditional syllabus (10 comments). Traditional syllabi are also often static documents, making it harder for students to see course schedule and deadline updates in real time, something students would prefer in an effective course reference document.

DISCUSSION

In this study, students in three different courses, ranging in class standing from freshmen to seniors, were presented a 4-page full length visual syllabus styled as an infographic. The design was created with GenZ media habits in mind, so it was similar to graphics students may encounter on social media sites like Twitter or Instagram (Seemiller & Grace, 2016). Information was organized to be bite-sized, engaging in layout and language, and easy to find. The goals of this study were to 1) evaluate how the design of the syllabus impacted students' reported syllabus reading and use patterns across different courses and class standing, 2) investigate how syllabus design affected students' perception of the course and instructor. To the best of our knowledge, this is the first report describing an infographic-style visual syllabus.

Impact of Syllabus Design

Students shared their thoughts on the syllabus after their first encounter with it, as well as at the end of the semester. First impressions shared by students through the group syllabus review were overwhelmingly positive. Students across courses and class standing liked the organization, layout, and design of the infographic syllabus, and reported positive impressions of the course and the instructor. Specifically, students noted the time-intensive design of the syllabus and expressed appreciation that the instructor was willing to make the effort to create a syllabus that was more student-centered. Positive instructor impressions were also noted in the end of term survey, with one student noting that the infographic syllabus told them that the instructor was "willing to go above and beyond for our learning." These findings are in agreement with existing research that simply by choosing a more engaging design, instructors can create a more positive and supportive impression of themselves and their course (Ekachai & Kim, 2019; Lightner & Benander, 2018; Ludy et al., 2016; Nilson, 2007; Nusbaum et al., 2020; Parkes & Harris, 2002).

Students' positive impressions were echoed in the end of term survey, where they responded very positively to the format and style of the syllabus, with only 2 of the 49 participants sharing overall negative impressions of the syllabus design. Participant responses to the Likert scale questions show that students found the infographic syllabus easy to use and follow and preferred the infographic format over a traditional text-heavy syllabus. These findings agree with current research on the use of graphic syllabus addendums (Mikhailova, 2018) and newsletter-style visual syllabi (Ekachai & Kim, 2019).

Student comments on the open-ended question supported their ratings, as students reported finding the syllabus interesting and fun to read, and much easier to navigate due to a layout that made it simpler to find relevant information quickly. This study shows how extending the use of graphics beyond a course concept map or a text-heavy newsletter structure can help create a syllabus that can be used easily as a reference tool. Of the available options, the infographic style is particularly well suited for

this type of document, as the use of clear heading structures and varied visual elements to highlight specific information allows for greater navigability.

Participants across courses and class standing felt that the syllabus design made them less anxious about the course and more comfortable with the course requirements. Qualitative analysis of student comments further supported these findings; as one student confessed, "It made things easier to understand and prevented so much stress. I always freak myself out over classwork because I never feel like I actually have it all done, but with this class I didn't have to." The layout of the infographic syllabus in particular was helpful in reducing student stress, as suggested by a student, "It made me so much less stressed because everything was laid out nicely." These findings further support the use of a well-organized infographic-style visual syllabus to support students in navigating their coursework.

Impact on Syllabus Use

Despite their preference for the syllabus format, only 57% of the students reported using the syllabus frequently. There are some confounding variables that likely impacted data regarding frequency of syllabus use. First, the question did not specify a measure of frequency and different students may code "frequency" differently. Having a clearer measure of frequency (for example once a week) would have helped disambiguate answers to this question. Second, the Moodle LMS layout and supplementary materials for the courses replicated most aspects of the syllabus. The course Moodle page was set up with weekly topic sections and the syllabus course schedule was replicated within each topic. Additionally, all assignment deadlines were shared in a spreadsheet for students to track due dates. Given that these supportive digital resources reproduced large sections of the syllabus, they may have reduced the incentive to refer to the syllabus itself. This interpretation is supported by student comments in the end of term survey, who noted that they relied on Moodle to keep track of course readings and deadlines. Finally, it's possible that the engaging nature of the infographic might have increased student retention of information, leading to lesser use overall, as suggested by participant comments noting stronger memories for the infographic syllabus than traditional syllabi.

The question regarding frequency of use was also the only question where a statistical difference was observed based on course. Students in the 300-level course reported using the syllabus more frequently than those in the 100-level course. Interestingly, this difference was not due to class standing alone since responses across class standing were not statistically significant. This difference between courses can be explained by a few factors. The 300-level course saw the fewest revisions of syllabus details once the course began. Since the syllabus was initially posted as a static PDF document, the 300-level students were most likely to find accurate information in the static syllabus through the semester. This may have resulted in them using the syllabus more frequently, with students in other courses choosing to rely on the course Moodle page, which was kept updated before I learned how to embed the live syllabus design directly into Moodle. Additionally, I ended class meetings for the 100-level course with a short list of upcoming work that students needed to complete in an effort to provide additional transition support as a freshman seminar instructor. I also sent a reminder email for our weekly asynchronous day for this course with a list of work

students should be completing. These practices might have made the 100-level students feel that they did not need to consult the syllabus, since the required coursework was routinely shared with them in another format. These factors may explain the specific difference in frequency of use between the 100-level and 300-level courses.

Overall, students reported reading the infographic syllabus more deeply than a traditional text-heavy syllabus. An examination of the comments from students that disagreed with this question revealed an interesting trend. These students were not all seniors, who would be used to reading syllabi in-depth already, and thus would not see a shift in their reading habits. Rather, the respondents spanned class standing. Their comments in the open-ended section of the survey show that these participants found the infographic-style visual syllabus easy to read and navigate, allowing them to quickly find information as needed, suggesting that an organized and engaging syllabus does not necessitate “deep reading” to find pertinent information. Furthermore, the syllabus language was written with a student audience in mind, which may have resulted in students finding the document easier to understand. As such, choosing an infographic-style visual syllabus format could allow faculty to share important course information with students more easily and with greater confidence that students will actually read and understand the presented information.

LIMITATIONS AND FUTURE DIRECTIONS

As a class-based investigation, this study highlights the impact of syllabus design on students in an authentic setting. However, this mode of study also has some limitations. The participants in the study were not randomly chosen, as their inclusion was based on their decision to register for these specific courses during Fall 2020. Consequently, the participant population is not controlled for the number of students, their age, gender, motivation, achievement, or learning styles. Additionally, participants were not presented with a traditional text-heavy syllabus as a comparative document in this study. As a result, students reported their preferences by comparing the infographic-style visual syllabus with text-based syllabi they received in other courses. This is not the best point of comparison, as other course syllabi may differ from the infographic-style visual syllabus in more ways than just the visual formatting. Other course syllabi could make use of practices that lower student preference and engagement, such as lack of sufficient depth, excessive length, or the use of warning language (Ekachai & Kim, 2019; Gurung & Galardi, 2021; Harnish & Bridges, 2011; Lightner & Benander, 2018; Waggoner Denton & Veloso, 2018). This may have impacted students’ perceived preference, as they could be responding to the supporting language use as well as the engaging format.

Future research studies can be designed to clarify what precisely the students are responding to within the syllabus. One way to achieve this goal would be to write syllabus content using evidence-based practices for creating a student-centered syllabus and presenting this content in either a text-only document or in an infographic-style visual syllabus. One aspect of the syllabus that students responded positively to was the use of short amounts of text with clearly marked headings, which made the syllabus easy to navigate quickly when looking for important course information. It is possible that presenting the same depth of information in a traditional Word document format with a similar heading

structure could provide students with a similar enhancement in syllabus usability (see Overman et al., 2019).

All the courses surveyed in this study are electives, so students enrolled in the courses made the choice to do so because of their interest in the topic. This higher motivation for the course topics may have predisposed the participants to have greater positive impressions of the course. Collecting information on students’ interest in the course prior to sharing the syllabus would help clarify the impact of the syllabus itself on student motivation.

Though students were provided time in class to read the syllabus, their depth of reading was not assessed through a syllabus quiz. As such, it is not possible to know with certainty that each participant read the syllabus completely, or whether the visual style of the syllabus helped students remember the syllabus information more easily. Future research should address how an infographic-style visual syllabus affects retention of syllabus content (Mocek, 2017; Overman 2019; Nusbaum, 2020).

CONCLUSION

Faculty typically do not receive explicit instruction on how to create a syllabus. Often, junior faculty inherit syllabi or receive feedback and input from senior faculty on how to craft their syllabi (Eberly et al., 2001). This may lead to an implicit understanding of what a syllabus is supposed to look like and prevent faculty from experimenting with the format. Additionally, creating a visual syllabus requires an investment of time, one that overworked faculty may not have, especially if it requires learning how to use a new type of software. Yet, this can be time well spent. A visual syllabus gives instructors the opportunity to weave narratives to engage students, create a space where students can feel that the instructor empathizes with them, and gives the instructor a chance to use marketing strategies to create student buy-in to their course plans (Ilchenko, 2018). In this study, a novel infographic-style visual syllabus was shared with students across three different courses in an authentic classroom setting. Across courses and class standing, the infographic-style visual syllabus was highly rated by the students. Their feedback highlights the ways in which syllabus design can impact students’ use and understanding of the syllabus, create greater comfort with course requirements, and promote positive impressions of the instructor. These findings support the idea that changing the typical design of a syllabus can alter student habits regarding using the syllabus more routinely, as captured by a student comment: “The infographic syllabus was a welcome change in pace from the blank white pieces of paper from my other classes, but I am not very much a syllabus-centered learner. I probably should be, and the infographic style, if I see more of it, will probably change that.”

ACKNOWLEDGEMENTS

I extend thanks to Mr. Brenan S. Beresford for feedback on this manuscript, Dr. Libby Pascoe for project discussions, and my students for their enthusiasm and feedback.

REFERENCES

- Biktimirov, E. N., & Nilson, L. B. (2003). Mapping your course: Designing a graphic syllabus for introductory finance. *Journal of Education for Business*, 78(6), 308-312.
- Burke, M., Hornof, A., Nilsen, E., & Gorman, N. (2005). High-cost banner blindness: Ads increase perceived workload, hinder visual search, and are forgotten. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 12(4), 423-445.
- Calhoon, S., & Becker, A. (2008). How Students Use the Course Syllabus. *International Journal for the Scholarship of Teaching and Learning*, 2(1), n1. <https://doi.org/10.20429/ijsoTL.2008.020106>
- Clark, C. (2014, August 26). *Turn your syllabus into an infographic*. NspireD2: Learning Technology in Higher Ed. <https://ltdatnd.wordpress.com/2014/08/26/turn-your-syllabus-into-an-infographic/>
- Eberly, M. B., Newton, S. E., & Wiggins, R. A. (2001). The syllabus as a tool for student-centered learning. *The Journal of General Education*, 56-74.
- Ekachai, D., & Kim, Y. (2019). Does Your PR Course Syllabus Excite, Intrigue, and Motivate Students to Learn? Syllabus Designs and Student Impressions of the PR Course and the Course Instructor. *Journal of Public Relations Education*.
- Fanguy, W. (2016, August 22). *How to Create an Infographic Syllabus with Piktochart*. Piktochart. <https://piktochart.com/blog/create-infographic-syllabus-piktochart/>
- Fink, S. B. (2012). The many purposes of course syllabi: Which are essential and useful? *Syllabus*, 1(1). <http://www.syllabusjournal.org/syllabus/article/view/161>
- Grunert O'Brien, J., Millis, B. J., & Cohen, M. W. (2008). *The course syllabus: a learning-centered approach*. Jossey-Bass.
- Gurung, R. A. R., & Galardi, N. R. (2021). Syllabus tone, more than mental health statements, influence intentions to seek help. *Teaching of Psychology*, 009862832199463.
- Habaneck, D. V. (2005). An Examination Of The Integrity Of The Syllabus. *College Teaching*, 53(2), 62-64.
- Hangen, T. (2011, January 3). *Extreme Makeover, Syllabus Edition*. Tona Hangen. <http://www.tonahangen.com/2011/01/syllabus-makeover/>
- Harnish, R. J., & Bridges, K. R. (2011). Effect of syllabus tone: students' perceptions of instructor and course. *Social Psychology of Education: An International Journal*, 14(3), 319-330.
- Harrington, C. M., & Gabert-Quillen, C. A. (2015). Syllabus length and use of images: An empirical investigation of student perceptions. *Scholarship of Teaching and Learning in Psychology*, 1(3), 235.
- Huston, T. (2009). *Teaching What You Don't Know*. Harvard University Press.
- Ilchenko, O. M. (2018). Narrativize This: An Unlikely Case. *Linguistics of the XXI Century: New Research and Perspectives*. http://langcenter.kiev.ua/Lingvistika%202018/6_Ilchenko.pdf
- Jenkins, J. S., Bugeja, A. D., & Barber, L. K. (2014). More Content or More Policy? A Closer Look at Syllabus Detail, Instructor Gender, and Perceptions of Instructor Effectiveness. *College Teaching*, 62(4), 129-135.
- Klein, K. (2019, March 6). *Give your syllabus a makeover and watch your classroom transform*. Noba Blog. <https://nobaproject.com/blog/2019-03-06-give-your-syllabus-a-makeover-and-watch-your-classroom-transform>
- Krum, R. (2013). *Cool Infographics: Effective Communication with Data Visualization and Design*. United States: Wiley.
- Leyro, J. G., & Scharff, L. V. (2015). *Syllabus Design and Manner of Delivery Impacts on Content Memory and Impressions*. US Air Force Academy Air Force Academy United States.
- Lightner, R., & Benander, R. (2018). First Impressions: Student and Faculty Feedback on Four Styles of Syllabi. *International Journal of Teaching and Learning in Higher Education*, 30(3), 443-453.
- Ludy, M. J., Brackenbury, T., Folkins, J. W., Peet, S. H., Ranzenhofer, S. J., & Beining, K. (2016). Student Impressions of Syllabus Design: Engaging Versus Contractual Syllabus. *International Journal for the Scholarship of Teaching and Learning*, 10(2), 6.
- Majooni, A., Masood, M., & Akhavan, A. (2018). An eye-tracking study on the effect of infographic structures on viewer's comprehension and cognitive load. *Information Visualization*, 17(3), 257-266.
- Matejka, K., & Kurke, L. B. (1994). Designing a Great Syllabus. *College Teaching*, 42(3), 115-117.
- Mayer, R. E. (2002). *Multimedia Learning* (3rd ed.). Cambridge University Press.
- McDonald, J., Siddall, G., Mandell, D., & Hughes, S. (2010). Two Sides of the Same Coin: Student-Faculty Perspectives of the Course Syllabus. *Collected Essays on Learning and Teaching*, 3, 112-118.
- Medina, J. (2008). *Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School*. Pear Press.
- Mikhailova, E. A. (2018). Enhancing Soil Science Education with a Graphic Syllabus. *Natural Sciences Education*, 47(1), 1-6.
- Mocek, E. A. (2017). The Effects of Syllabus Design on Information Retention by At-Risk First Semester College Students. *Syllabus*, 6(2). <http://www.syllabusjournal.org/index.php/syllabus/article/view/222>
- Newbold, C. (2017, August 14). *How to Turn Your Syllabus into an Infographic*. The Visual Communication Guy. <https://thevisualcommunicationguy.com/2017/08/14/how-to-turn-your-syllabus-into-an-infographic/>
- Nilson, L. B. (2002). 16: The Graphic Syllabus: Shedding a Visual Light on Course Organization. *To Improve the Academy*, 20(1), 238-259.
- Nilson, L. B. (2007). *The Graphic Syllabus and the Outcomes Map: Communicating Your Course*. John Wiley & Sons.
- Nusbaum, A. T., Swindell, S., & Plemons, A. (2020). Kindness at First Sight: The Role of Syllabi in Impression Formation. *Teaching of Psychology*, 48(2), 130-143. <https://doi.org/10.1177/0098628320959953>
- Parkes, J., & Harris, M. B. (2002). The Purposes of a Syllabus. *College Teaching*, 50(2), 55-61.
- Perrine, R. M., Lisle, J., & Tucker, D. L. (1995). Effects of a Syllabus Offer of Help, Student Age, and Class Size on College Students' Willingness to Seek Support from Faculty. *Journal of Experimental Education*, 64(1), 41-52.
- Sauer, K. M., & Calimeris, L. (2015). The Syllabus Evolved: Extended Graphic Syllabi for Economics Courses. *Journal of Economics and Economic Education Research*, 16(1), 135-148.
- Saville, B. K., Zinn, T. E., Brown, A. R., & Marchuk, K. A. (2010). Syllabus Detail and Students' Perceptions of Teacher Effectiveness. *Teaching of Psychology*, 37(3), 186-189.

- Scott, H., Fawcner, S., Oliver, C.W., & Murray, A. (2017). How to make an engaging infographic? *British Journal of Sports Medicine*, 51(16), 1183–1184.
- Seemiller, C., & Grace, M. (2016). *Generation Z Goes to College*. John Wiley & Sons.
- Shatto, B., & Erwin, K. (2016). Moving on From Millennials: Preparing for Generation Z. *Journal of Continuing Education in Nursing*, 47(6), 253–254.
- Slattery, J. M., & Carlson, J. F. (2005). Preparing An Effective Syllabus: Current Best Practices. *College Teaching*, 53(4), 159–164.
- Smiciklas, M. (2012). *The Power of Infographics: Using Pictures to Communicate and Connect with Your Audiences*. United Kingdom: Pearson Education.
- Smith, M. F., & Razzouk, N.Y. (1993). Improving Classroom Communication: The Case of the Course Syllabus. *Journal of Education for Business*, 68(4), 215–221.
- Stowell, J. R., Addison, W. E., & Clay, S. L. (2018). Effects of Classroom Technology Policies on Students' Perceptions of Instructors: What is Your Syllabus Saying about You? *College Teaching*, 66(2), 98–103.
- Tetlan, L., & Marschalek, D. (2016). How Humans Process Visual Information: A focused primer for designing information. *Visible Language*, 50(3), 65–88.
- Thompson, B. (2007). The Syllabus as a Communication Document: Constructing and Presenting the Syllabus. *Communication Education*, 56(1), 54–71.
- Waggoner Denton, A., & Veloso, J. (2018). Changes in syllabus tone affect warmth (but not competence) ratings of both male and female instructors. *Social Psychology of Education: An International Journal*, 21(1), 173–187.
- Yarosh, J. H. (2021). The Syllabus Reconstructed: An Analysis of Traditional and Visual Syllabi for Information Retention and Inclusiveness. *Teaching Sociology*, 49(2), 173–183.
- Yerian, K. (2009). Using a Graphic Syllabus with Second Language Learners. *ORTESOL Journal*, 27, 9–18.
- Yousof, A. K. (2020). Syllabus as a Graphics Based Document. *Syllabus*, 9(1). <http://www.syllabusjournal.org/syllabus/article/view/292>

APPENDIX A

Four-page infographic-style visual syllabus used for the 400-level course in this study.

NEUROPHARMACOLOGY

NEUR410: ADVANCED TOPICS IN NEUROSCIENCE

MEETINGS TR 8:00-9:40AM Online
Check Course Schedule For More Information

BEST WAY TO REACH ME

Email: akaur@unca.edu
Virtual Office Hours: Schedule at calendly.com/drkaur
Moodle General Discussion Forum: top of Moodle page

INSTRUCTOR
DR. ANGEL KAUR

Asst Professor
Neuroscience

COURSE DESCRIPTION

This course will focus on topics relating to Neuropsychopharmacology and the mechanisms that underlie psychoactive drug use and dependence, specifically the neurochemistry of the brain, and how drugs are used to affect chemical transmission in the brain, producing changes in motor behavior, cognition and emotion.
Prerequisites: CHEM132, BIOL136, NEUR216

COURSE RESOURCES

All **required** materials will be posted to our course Moodle page.

OPTIONAL

I will be using Meyer's Psychopharmacology textbook to guide our course. If reading textbooks helps with your learning, I recommend getting a copy of the book

REQUIRED TECH

Computer/Tablet
Headphones

Internet Access
Google Drive

Web browser
PDF Reader

LEARNING OUTCOMES

01 Summarize the principles of electrical and chemical signaling in the nervous system.

04 Contrast the effect of recreational and therapeutic drugs on the chemical functions of neural systems.

02 Describe the chemical functions of major neurotransmitter systems.

05 Critically evaluate reports of original scientific research with regard to the rationale, hypothesis, research design, sources of error and variability, and significance of findings.

03 Explain the factors that determine drug action and addiction.

06 Create science communication media to share informed opinions about the cellular and molecular mechanisms of drug effects with a broad audience.

DIVERSITY INTENSIVE

Neuropharmacology is a Diversity Intensive course, focusing on the meaning and experience of **diversity and difference** and the implications of living in a diverse society in the context of our course topic. We will examine contemporary concerns related to drug use by humans, particularly **substance use disorders** and **medical treatment of mental health disorders**. We will engage in discussions about the **biological diversity** that predisposes or protects individuals from these disorders. In addition, we will examine how **environmental factors**, **drug policies**, and **social structures** intersect with **neurochemistry** to render individuals more or less vulnerable to the disorders. We will deconstruct the identity of "addict" and challenge the relationship between "willpower" and relapse by closely examining the current scientific research being conducted by members of the Kalivas group (more on this below).

LEARNING OUTCOMES

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01 Understanding the socially constructed nature of identities.

02 Understanding the significance of individuals' differing relationships to power.

03 Understanding how individuals, organizations, and institutions create, perpetuate, or challenge inequality.

04 Understanding how multiple identities intersect.

05 Becoming better equipped to reevaluate ideas about diversity and difference.

STRATEGIES FOR SUCCESS

Take handwritten notes while watching lecture videos & reading for class

Take care of your emotional, physical, and mental health

Seek help with difficult concepts during class meetings, or on the discussion board

Set aside specific time for class related work. Treat that time like you are actually in class

COURSE FORMAT

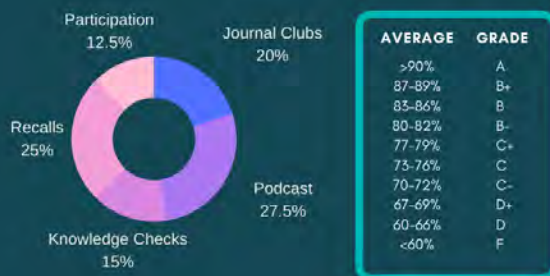
This class has a **blended** format. We will have some synchronous and some asynchronous course modules, with a few mandatory Zoom meetings. We will cover new course content during Zoom meetings, and all meetings will be recorded and posted to Moodle for asynchronous viewing.

ASSIGNMENTS

KNOWLEDGE CHECK	AT THE END OF LECTURE VIDEOS Check your understanding of lecture material through short quizzes. You will have unlimited tries on each quiz, and must get all the answers right to meet the lecture learning outcomes.
AT THE END OF COURSE MODULES Demonstrate your mastery of lecture material through recalls, an evidence-based high impact learning strategy	RECALL
JOURNAL CLUB	EVERY FEW WEEKS Develop critical reading skills in this seminar style discussions of primary literature articles from the Kalivas lab, examining mechanisms underlying relapse. We will have 4 journal club meetings over the semester.
FINAL PROJECT As a team, delve into the current understanding of a drug we don't cover in class and showcase your science communication skills by creating a podcast for a general audience.	PODCAST
CLASS PARTICIPATION	ZOOM AND MOODLE Complete learning modules on Moodle and participate in live and digital class activities to fully engage with the course materials. Engage with your classmates with enthusiasm and compassion.

Full assignment details and rubrics on Moodle.

GRADING



COURSE POLICIES

COVID & EVERYTHING ELSE

It's been a year, and it isn't over yet. My hope is that our class will give you something to be excited about, and my goal is to help you succeed this semester. My primary course policy this semester is to be flexible, so let me know if you need help.

ASSESSIBILITY

If you need any accessibility-based accommodations, please let me know so we can make appropriate arrangements.

LIFE TOKENS

Life happens. Especially right now. Use up to 5 life tokens for a no-questions asked deadline extension for up to 1 week or assignment resubmission. ps. Let me know when you're using a life token Just an email saying "Hey Dr. K, I'm using a life token on x assignment" will suffice.

DUE DATES

Assignment due dates are designed to help you progress through the course while engaging in deep learning. Feedback for late work without a Life Token will be given through a one-on-one meeting.

FEEDBACK

Typical response time for non-urgent emails: 24-48 hours
Typical grading return: 1 week after submission

ZOOM

We'll meet at least once a week via Zoom (follow course schedule). Please arrive on time, restrict distractions, and arrange to have your camera on.

ATTENDANCE

Mandatory synchronous Zoom meetings will be marked in the course schedule. Make every effort to attend these meetings.

NETIQUETTE

Use appropriate language for a classroom setting whether in Zoom meetings or on a discussion board. Treat your classmates with respect and compassion.

Check Moodle for more details, and any COVID related updates

COURSE SCHEDULE

AUG 11 **Course Introduction** **M**
 During class: Introductions and Syllabus Review
 After class: Complete course pre-test

AUG 13 **Neuroscience Background
Primary Literature & Journal Clubs**
 Before class: View mini-lecture on Primary Lit
 Post in discussion forum
 During class: View Neuroscience Background mini-lectures
 Complete Knowledge Checks

AUG 18 **Principles of Pharmacology**
 Before class: View mini-lectures of the day
 Complete Knowledge Checks
 During class: Q&A
 After class: Post Podcast Topic
 Submit Group Contract

AUG 20 **Principles of Pharmacology**
 Before class: Review notes from previous lectures
 During class: View mini-lectures of the day
 Complete Knowledge Checks
 After class: Recall 1

AUG 25 **Drug Abuse & Addiction** **M**
 Before class: View mini-lectures of the day
 Complete Knowledge Checks
 During class: Lecture, Q&A, Class Activity
 After class: Begin compiling Podcast Resource List

AUG 27 **Drug Abuse & Addiction**
 Before class: Review notes from previous lectures
 During class: View mini-lectures of the day
 Complete Knowledge Checks
 After class: Continue work on Podcast Resource List

SEP 1 **Journal Club 1** **M**
 Before class: Read posted article for Journal Club 1
 Complete & Submit JC Pre-assignment
 During class: Paper Discussion
 After class: Finalize Podcast Resource List

SEP 3 **Structure & Function of the Nervous System**
 Before class: Submit Podcast Resource List
 During class: View mini-lectures of the day
 Complete Knowledge Checks
 After class: Recall 2

SEP 8 **Chemical Signaling by Neurotransmitters & Hormones**
 Before class: View mini-lectures of the day
 Complete Knowledge Checks
 During class: Q&A
 After class: Review class notes

SEP 10 **Chemical Transmission by NT & Hormones**
 Before class: Review notes from previous lectures
 During class: View mini-lectures of the day
 Complete Knowledge Checks
 After class: Recall 3
 Continue work on Podcast Bibliography

SEP 15 **Glutamate & GABA**
 Before class: View mini-lectures of the day
 Complete Knowledge Checks
 During class: Q&A
 After class: Continue work on Podcast Bibliography

SEP 17 **Monoamines**
 Before class: Review notes from previous lectures
 During class: View mini-lectures of the day
 Complete Knowledge Checks
 After class: Submit Podcast Bibliography
 Submit Group work reflection

SEP 22 **Monoamines**
 Before class: View mini-lectures of the day
 Complete Knowledge Checks
 During class: Q&A
 After class: Review Class Notes

SEP 24 **Cocaine**
 Before class: Review notes from previous lectures
 During class: View mini-lectures of the day
 Complete Knowledge Checks
 After class: Recall 4

SEP 29 **Journal Club 2** **M**
 Before class: Read posted article for Journal Club 2
 Complete & Submit JC Pre-assignment
 During class: Paper Discussion
 After class: Begin work on Podcast Draft

OCT 1 **Self Scheduled Group Work Time**
 Before class: Determine how your group will meet
 During class: Work on Podcast Draft
 After class: Determine final steps to complete draft

OCT 6 **Alcohol**
 Before class: View mini-lectures of the day
 Complete Knowledge Checks
 During class: Q&A
 After class: Submit Podcast Draft

OCT 8 **Nicotine & Caffeine**
 Before class: Review notes from previous lectures
 During class: View mini-lectures of the day
 Complete Knowledge Checks
 After class: Continue work on Podcast Script

Orange headings denote class meetings over Zoom
 M denotes mandatory online meetings

We will cover some new course content during Zoom meetings. All meetings will be recorded and posted to Moodle for asynchronous viewing.

COURSE SCHEDULE CONTINUED

OCT 13

Opioids
Before class: View mini-lectures of the day
 Complete Knowledge Checks
 Submit Podcast Script
During class: Q&A
After class: Review class notes

OCT 15

Opioids
Before class: Review notes from previous lectures
During class: View mini-lectures of the day
 Complete Knowledge Checks
After class: Recall 5

OCT 20

Journal Club 3

M

Before class: Read posted article for Journal Club 3
 Complete & Submit JC Pre-assignment
During class: Paper Discussion
After class: Review Lecture Notes

OCT 22

Self Scheduled Group Work Time
Before class: Determine how your group will meet
During class: Complete podcast recording

OCT 27

Anxiety Disorders & Medications
Before class: View mini-lectures of the day
 Complete Knowledge Checks
During class: Q&A
After class: Submit Podcast Recording

OCT 29

Anxiety Disorders & Medications
Before class: Review notes from previous lectures
During class: View mini-lectures of the day
 Complete Knowledge Checks
After class: Start work on podcast peer-review

NOV 3

Depression & Medication
Before class: View mini-lectures of the day
 Complete Knowledge Checks
During class: Q&A
After class: Continue work on podcast supplementary materials

NOV 5

Depression & Medication
Before class: Review class notes
During class: View mini-lectures of the day
 Complete Knowledge Checks
After class: Submit podcast peer-review

NOV 10

Journal Club 4

M

Before class: Read posted article for Journal Club 4
 Complete & Submit JC Pre-assignment
During class: Paper Discussion
After class: Edit podcast recording based on feedback received

NOV 12

Course Conclusion
Before class: Begin work on group work evaluation
During class: Recall 6
After class: Continue work on podcast supplementary materials

We will meet during our during our finals time to complete course post-tests (Nov 19 9:00-10:30am).

IMPORTANT DUE DATES

RECALLS
 All recalls must be completed through Moodle by Sunday at 9pm on the listed week.

JOURNAL CLUB PRE-ASSIGNMENTS
 All JC Pre-assignments are due on Moodle by 8am the day of the JC discussion. In-class assignments are due the day of the class by 9pm

PODCAST
 Complete all parts of the group project on Google Docs. Submit by adding a shortcut of your document or audio file to an assigned Google Folder linked on Moodle.

PROJECT SECTIONS	DUE DATES
Group Contract	AUG 19, 8AM
Podcast Topic	AUG 20, 8AM
Resource List	SEP 3, 9PM
Annotated Bibliography & Graphical Summary	SEP 19, 9PM
Group Work Reflection	SEP 19, 9PM
Written Draft	OCT 12, 9PM
Audio Draft	OCT 28, 9PM
Peer Review	NOV 8, 9PM
Group Work Evaluation	NOV 20, 9PM
Final Podcast & Supplementary Materials	NOV 20, 9PM



Please reach out if you have any questions or concerns.

I am really excited to get started on this course with you all!