Regularly Offering Additional Online Course Options at UCCS

July 30, 2020

(Source: Warren, n.d.)

Prepared for

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Memorandum

TO: Chuck Litchfield, Vice Chancellor Administration and Finance
Mathew Cox, Senior Executive Director of Enrollment Management
FROM: Joshua Doucet, Student of Computer Science at UCCS
DATE: July 30, 2020
SUBJECT: Implementing Additional Online Course Options at UCCS

Attached below is a proposal for implementing additional online course options on a regular basis at the University of Colorado, Colorado Springs (UCCS). Today, we are currently living in a world that requires us to conduct courses in an online format due to a global pandemic. However, one day the pandemic will end, and some students will return to campus for lectures, but other students would prefer to continue pursuing their academic goals online.

There are many benefits to online courses, and there are students who want and need to take their coursework online rather than on campus. Therefore, I believe UCCS should consider the increased development of online courses to align with the needs of the student body. UCCS currently offers 13 online undergraduate degrees, but only offers most of their 100+ programs in the on-campus setting. Students who desire an online-only experience will likely look to other universities that offer their desired program of study unless UCCS continues to strengthen their presence in the online landscape of higher education.

There exists an opportunity to meet the increased demand for postsecondary coursework in the online environment. In 2015, 14.2% of US college students enrolled exclusively in online coursework (Allen et all, 2017). By seizing this opportunity UCCS can become a leader in online education while meeting the needs of their students and increasing their overall enrollment numbers. This can in turn result in reduced operation costs, and higher revenues due to a larger number of students being able to pursue their educational aspirations.

The following report discusses student perceptions of online courses and provides insight into the implications of making more courses available online. A balance of considerations is presented for the increased development and implementation of online courses. The argument outlines some of the strengths and weakness of transitioning to an online learning environment, and the report concludes with several recommendations on how universities can successful develop engaging high-quality online coursework that maintains academic integrity.

I appreciate you taking the time to consider adapting the university's course offerings in favor of the growing number of students that desire a more flexible path towards education success.

Executive Summary

The number of postsecondary college students enrolling in online coursework has been continuously growing since the widespread adoption of the internet. Print textbooks are being replaced with digital PDF files, and classroom lectures are being replaced with prerecorded or livestreamed online video. The landscape of higher education is changing, and UCCS needs to be prepared to meet the changing needs of students. Currently UCCS offers some of its undergraduate and graduate degree programs entirely online, but there still exists an opportunity to increase that number. A large portion of UCCS's student body does not have the option to complete their degree program online.

Interest in online coursework has been on the rise for many years, but most online enrollments are concentrated at a small number of higher learning institutions (HLIs) in the US. To remain competitive UCCS must increase its high-quality online course catalog to compete with these institutions. By remaining competitive in online education UCCS will provide its students more flexible options in their pursuit of academic success.

Many students have obligations other than school that they must attend to that limit their ability to enroll in on-campus lectures. Some students face adversity everyday through disabilities that effect their ability to attend campus, and other students have trouble engaging in traditional courses simply because they have a different learning style. Conversely, some students may not have an internet connection at home, while other students find it difficult to engage in online coursework. There is not a single course format that works best for every student, and that is why UCCS ought to ensure that its entire student body has more course options that are best suited for their individual learning needs.

The initial costs for developing online courses can be quite substantial, but these costs will vary significantly depending on the nature of the course being developed. Although upfront costs can be high, in the long-term online courses can cut university operating costs while increasing overall student enrollment assuming proper course development. Courses should be developed with the fullest extent of quality that time and budget allow. Quality courses that are timeless will continue to serve the university for many semesters while increasing the university's reputation as a leader in online education.

Positive perceptions of online courses are influenced by course aspects such as an easy-to-use course interface, engaging content, and effective course instruction. Each aspect can be achieved by ensuring that the quality found in traditional course formats is not lost in translation to an online variant.

Meet the changing needs of the postsecondary student population by increasing UCCS's online program catalog. In doing so UCCS will foster an educational environment that can assist more students in meeting their educational aspirations.

Introduction

Computational technology is continuously becoming more readily available and acts as a driving force to push more of our everyday interactions to the online environment. This trend of communicating online allows each of us to efficiently communicate with one another regardless of our differing geographical locations. Today, a connection to the internet allows us to send and receive files of any kind, and conduct virtual meetings Thus, traditional on-campus college lectures are increasingly becoming available in alternative online formats.

UCCS currently offers 13 undergraduate degrees that can be completed entirely, or mostly online. In these programs' students can complete their educational goals without ever attending the university's campus. Although UCCS does offers some of its programs online, most of its 100+ programs cannot be completed online. To determine UCCS's online presence I researched the number of online courses that UCCS had intended to offer in Fall 2020 prior to new scheduling adjustments due to the COVID-19 pandemic. I found that the average number of online undergraduate courses offered to be 3.76 courses per department. The departments that appear to excel in online offerings are the Communication, Sociology, and Chemistry departments with 23, 12, and 11 courses offered online for the Fall 2020 semester. See Figure B-5 in Appendix B for details on the number of courses UCCS planned to offer prior to COVID-19 adjustments.

Although some departments at UCCS excel at offering online coursework, most of the university's departments only offer a few courses in the online format, which means that most students do not have the option to complete their degrees online. This can become a significant barrier for many students who have trouble getting to campus, or students that have other obligations that make scheduling on-campus courses difficult. Therefore, UCCS should consider the increased implementation of online courses on a regular basis to allow a larger number of students to achieve their academic goals.

Online Enrollment Numbers and Enrollment Opportunity

The increased implementation of online courses at UCCS could increase student enrollment by meeting the current demands for online coursework. An article from the Journal of Contemporary Issues in Education Research titled "Barriers to online postsecondary education crumble: Enrollment in traditional face-to-face courses declines as enrollment in online courses increases," describes an opportunity that exists for US educational institutions to grow enrollment by effectively meeting demand for online postsecondary learners globally. Outside the US, the educational movement to online courses is accelerating away from print textbooks and in-person classroom instruction, and this trend is most noticeably seen in Latin America, Asia, and Africa (Gray, 2014).

The percentage of US student enrollment in online postsecondary coursework has grown each year from 2002 to 2011. In 2011 32% of total college enrollment was for courses offered in an online format. The growth can be seen in Figure A-1 of Appendix A (Gray, 2014)). Additionally, a periodical from US News states that US enrollment in online courses has grown for a consecutive 14-year period from 2002 to 2016 (Friedman, 2016). Another article titled "Distance learning Statistics 2020" states that in Fall 2017, 3.1 million (15%) of US students chose to enroll exclusively in online courses. And in 2018 47% of students who choose an entirely online program said that they chose the online program format because of other personal commitments that make it difficult to attend classes on a campus (Bastrikin, 2020). Other reasons that students chose online coursework can be found in Figure A-2 and Figure B-1.

Student interest in online coursework is on the rise, but the portion of higher learning institutions (HLIs) that enroll online students is a small fraction of all the institutions in the US. A significant portion of online enrollment is highly concentrated in a small number of HLIs. A report titled "Distance Education Enrollment Report 2017" produced by the Online Learning Survey found that nearly half of all US online enrollment is taking place at 5% of the US's accredited HLIs. Moreover, 47 HLI's that represents 1% of all US institutions provide 23% of all online enrollment (Allen et all, 2017). See the online enrollment percentages by number of institutions in Figure A-3. Other graphs from the report on enrollment numbers can also be found in Figures A-4, A-5, and A-6. Figure A-4 shows the number of US students enrolled in college between 2012 and 2015. Figure A-5 shows a list of the HLIs that top online enrollment alongside their number of students enrolled in online courses in 2015. And Figure A-6 shows that in 2015, 14.2% of US college students enrolled exclusively in online courses.

If UCCS continues to implement more online offerings that are competitive with the top schools that dominate online enrollment, then the university has the potential to recruit a larger number of students seeking quality online degree programs. The university could become a top player in online education with a strong push towards increased availability of quality online coursework.

A Balance of Consideration for Online Courses

There are both benefits and drawbacks to online course offerings and it is pertinent to present a balance of considerations regarding the increased implementation on online learning at UCCS. Important variables include the type of online course delivery, the quality of online courses, the costs and revenue associated with online courses, the perceptions of students and faculty, the performance of students in online courses, and the versatility that accompanies the offering of online learning options.

Type of Online Course Delivery

There are many formats of online learning available today, and the best format may vary depend on the nature of a course, and the learning style of a student. Some courses can thrive in an entirely online format, but others may be better suited as hybrid courses, a.k.a. blended learning, where some elements of a course remain in-person while other elements exist online. Some formats of online learning may utilize web-based platforms such as Blackboard and Canvas, while others may opt for video lecture recordings, and email correspondence. Online courses can also be synchronous or asynchronous. Synchronous courses meet at a specified time in virtual conference rooms using software such as WebEx, Zoom, or MS Teams. Asynchronous courses do not meet at specified times and rely on web platforms that host course assignments, quizzes, and discussion boards (Blau et all, 2017). Lastly, there are massively open-online courses (MOOCs). These are courses that thousands of people enroll in and require little to no interaction from the instructors of the course. The instructors post all the course contents, and the students' complete assignments that are either auto graded by software, or peer-reviewed by other students.

Quality, Traditional versus Online

" To maintain online course quality, it is important to keep the 'integrity' of a course, that is, offer to the extent possible, the same content and learning outcomes in an online course as the face-to-face (F2F) equivalent" (Blau et all, 2017). Essentially, elements of traditional courses should not be absent in the online format. Some of these elements include instruction, assignment, examination, discussion, and hands-on-experience with the course material. Web platforms combined with conferencing software allow online courses to facilitate all the basic elements found in traditional courses.

Online course formats can excel in some respects and fall short in others when comparing them to a traditional on-campus course experience. One notable example is the classroom discussion. Discussions in online courses create an environment different than that of a traditional course. In a traditional classroom setting students get more social emotional context in the discussion. The energy of the participants are more apparent, nonverbal signs are front and center, and feedback is immediate. In online discussions, text forums are commonly used where students type their responses to other classmates. This format loses some of the social queues from the traditional discussion but allows the students to take more time to reflect and compose responses to the discussion. This format can foster responses that are well thought out and have a deepen context and contribution to the discussion (Blau et all, 2017). Online discussions are not necessarily inferior to in-class discussions, rather they act as different approach to having a conversation, and the quality of that discussion will be determined by the level of effort given by each of the students in the course.

Expenditure and Revenue

Converting current course offerings to online formats, or creating new courses specifically tailored for online learning can be a hefty expense for universities but this transition to online can also result in increased university revenues if the university can find the appropriate balance between their number of on-campus and online course offerings. Students are increasingly seeking online enrollment, but a large portion of students still desire in-person learning as well.

Online courses require copious amounts of time and money to develop; therefore, online courses have substantial costs associated with their initial development phase. A document from the University of California, Irvine Distance Learning Center found that faculty instructors can expect to spend 60-120 hours converting existing course material to an online format, and an additional 80 hours to develop a new course (Navaro, 2015). Despite initial costs, several courses can be reused for many semesters depending on the format chosen for each online course. Navarro says that "online education technologies will both substitute labor and complement labor" (2015). This substitution of labor could potentially lower long-term college operating costs by reducing the amount of funding spent on faculty instruction. Moreover, classroom time is at a premium when there are a limited number of rooms and seats available, thus online courses have the potential of increasing enrollment without increasing the universities expenditure on building infrastructure for classrooms (Napier et all, 2011). Universities that have a limited number of seats in classrooms may be able to enroll a greater number of students which will allow revenues to grow and simultaneously allow students to graduate from their program in a more timely manner due to the increased number of "seats" available in online courses (Navarro, 2015).

Wu He author of "A framework of combining case-based reasoning with a work breakdown structure for estimating the cost of online course production projects" agrees that online course production can be a costly task. He further argues that it is also a relatively complicated task, and that it is often difficult to estimate the actual costs associated with the development of online courses because there are many variables that vary by course and institution (He, 2014). He suggests that the courses being developed should be broken down into smaller modules and each module should get an estimated cost based on prior experiences and faculty intuition. Furthermore, the variables that determine the cost of a course include "selected technologies, instructional design, project management, quality assurance, interaction models, course materials and equipment, type of training, experience and the skill levels of the staff" (He, 2014).

Overall, online courses can incur a significant upfront cost, but if they are developed for reusability, then they can reduce university operation costs by reducing the amount of funding spent on course instruction and buildings for classrooms. Online course development varies significantly by the course being offered, and by the institution offering the course, and it is often difficult to get a high-level cost estimate for implementing each online course. However, cost

approximations can be obtained by understanding the skills of the faculty looking to develop courses, and by breaking the course into smaller modules so that it is easier to determine the cost and time needed to create an online section of a course.

Perceptions of Online Courses

Student perceptions of online courses are mixed and can be both positive and negative depending on the type of student looking to enroll in courses. A group of students enrolled in an online finance course were surveyed at the University of California, Irvine, and the results found that: 37% of the respondents said that at least half of their lecture courses could be delivered online: 33% said most courses, and 11 percent said all courses could be successfully delivered online (Navarro, 2015).

For many students, online courses allow access to world-class programs regardless of their geographical location, while allowing flexible scheduling and self-paced instruction depending on the online course's method of delivery. However, for other students the burdens of technology and the increased self-reliance required in online courses make this course format unfavorable to many. The Journal of Asynchronous Learning published an article in 2011 titled "Transitioning to blended learning: Understanding student and faculty perceptions" (Napier et all). This article reports on a two-year study on implementing and assessing blended (hybrid) learning for an intro to computing course at Georgia Gwinnett College (GGC), and had the goal of answering the questions: "What do students perceive as the benefits and challenges of taking blended learning courses?" and "What do faculty perceive as the benefits and challenges of teaching blended learning courses?"

The study found that students believe online courses provide a flexible way to pursue higher education. Online courses remove the barriers of scheduling conflicts, and geographical proximity to a higher learning institution, thus some students actively pursue online courses because they better fit their lifestyle. Some students believed that the online coursework was more challenging, but also believed that being challenged was a benefit to the course format, because it hones self-reliance and time management skills (Napier et all, 2011). See quotes from study participants in Appendix C. On the other hand, students transitioning to online or blended learning courses can become overwhelmed because they must become independent learners, have good time management, and be confident with modern technology tools (Napier et all, 2011).

Another study titled "Do Technological and Course-Related Variables Impact Undergraduates' Perceived Favorability and Willingness to Recommend Online/Hybrid Business Courses?" aimed to collect student and faculty perceptions of online courses to determine the relationships between an online course's ease-of-use, instructor effectiveness, perceived favorability of the course, and student's willingness to recommend the course (Blau et all, 2017). This study used a

7-point Likert scale to survey 634 students taking an online business course in Fall 2015 and 546 students taking the same course in Spring 2016. The demographics of the study can be found Figure A-7 in Appendix A. The results of this this study found that perceived ease of use was a significant positive correlate of perceived favorability. Instructor effectiveness was also a positive correlate for both perceived favorability and willingness to recommend. And lastly, motivation had a significant positive correlate on willingness to recommend to other students (Blau et all, 2017).

In a final attempt to understand student perceptions of online courses I surveyed a very small group of students at UCCS. From a sample size of 10 student respondents that have taken an online course I found that: 9 participants took an online course because of schedule flexibility, 3 took online because they have trouble getting to or around campus, 3 prefer online courses over in-person or hybrid, 5 believe that online courses are equal to or superior in quality to in-person courses, and 3 would choose to complete their degree/program entirely online if it were available. See Figures B1 through B4 in Appendix B for survey results.

To summarize, student and faculty perceptions of online course are mixed. Some aspects of online learning such as increased schedule flexibility lead to positive perceptions, while other aspects such as increased self-reliance and confusing technology lead to negative perceptions. Although perceptions vary, many students believe courses can successful operate online when course technology is easy to use, instructors are effective in conveying information, and students have a heightened level of motivation to complete course assignments.

Other Implications of Online Courses

Student performance should be looked at when comparing online with face-to-face course offerings. Data from the GGC study found that 75% of students taking an online hybrid version of an intro to computing course received a letter grade between an A and a C, while 80% of the student enrolled in the face-to-face sections received a grade in the same range (Napier et all, 2011). The study consisted of 420 hybrid students and 743 face-to-face students. This suggests that some students may be more challenged by online coursework.

Beyond grading, Online courses teach skills needed to perform in virtual teams which are becoming more common in the workplace (Blau et all, 2017). This creates a learning environment that may better align with the environment of certain workplaces, thus further preparing students for a changing work environment that may have a greater online presence in the future.

Preparedness for Societal Uncertainty

UCCS should be prepared for societal uncertainty and an increase in online course offerings will aid the university in times of adversity such as what the world has experienced with the global

COVID-19 pandemic. Salah-Eddine Kandri wrote an article in the Global Economic Forum titled "How COVID-19 is driving a long-overdue revolution in education" which observes that the COVID-19 virus has forced universities around the world to move their courses online whether they were prepared to operate in an online environment or not (2020). Kandri states, "COVID-19 is causing us to challenge deep-rooted notions of when, where, and how we deliver education, of the role of colleges and universities, the importance of lifelong learning, and the distinction we draw between traditional and non-traditional learners" (2020).

Due to the pandemic, 1.5 billion students (approximately 90% of all students worldwide) were unable to physically attend their learning institutions in early 2020. Platforms like Zoom and WebEx have kept universities afloat during the pandemic through video conferencing (Kandri, 2020). However, due to inadequate preparations by universities, the quality and depth of course engagement may be lacking in comparison to the traditional classroom environment that the courses were initially designed for. Online instruction was once seen as a threat to traditional HLI's because institutions have already invested large amounts of money into physical infrastructure for in-person learning; however, online instruction has come to the rescue during the demanding times associated with the COVID-19 virus that has shut down schools around the world.

Students are becoming more comfortable with online learning because of the global COVID-19 pandemic and their appetite for more online coursework will continue to grow (Kandri, 2020). I personally agree with this statement. Now that I have seen successful execution of remote-learning courses at UCCS, I have little desire to return to campus for traditional in-person lectures.

As UCCS continues to implement more online courses at scale, the university will be more adept to serve students during future times of community hardship and will also be able to align with the changing preferences of students and their higher education goals. Preparing for uncertainty today makes the university more prepared for the unknown of tomorrow.

Tips for Implementing Online Courses

The Right Format for the Right Course

Introductory lecture courses intended to teach basic principles are the ideal candidates for online formats and will likely be courses that are easiest to convert to online course material (Navarro, 2015). On the other hand, courses that require field training or laboratory experiment will be more difficult to develop for the online setting and may be best experienced in-person. Napier agrees that "Learning experiences such as field training, observation, initial group collaboration meetings, and laboratory exercises may be better experienced face-to-face" (2011). Alternatively, courses that focus on team-collaboration could thrive in an online synchronous

format by meeting at specified times online each week using web conferencing software to share ideas and have discussions about the course material. Courses that focus heavily on vocabulary and terminology may thrive in an asynchronous online course, so that students can access all the course information that they need to become familiar with on the timetable that works best for them.

The right format for the right course is about determining which context is best suited for delivering information to students in a way that they can effectively learn. This is partially determined by the nature of a course, but it is also determined by the learning style of each individual student. The more appropriate question is not what the correct course *format is*, rather it is what the correct course *formats are*. Universities should offer courses in multiple formats to meet the needs of their entire student body. Some students will thrive in on-campus course formats, while other students will thrive in online formats.

Quality Assurance, Course Development and Training

Online education is a competitive space, and faculty must have proper incentive to produce high quality online coursework. This likely means that proper funding and reduced teaching loads should be available in the development stage of online courses. To produce the most successful learning experience in online courses, college administrators and faculty should strive to put as much quality into their online courses as possible given their time and budget constraints (Navaro, 2015). This will set their courses apart from similar courses being offered online by other institutions.

Faculty that approach online learning need to adapt to a new environment and adopt new tools and new mindsets for conducting a successful classroom. Proper training is an absolute necessity for instructors that plan to develop and/or teach online courses (Napier et all, 2011). An article from the Journal of Economic Perspectives written by Peter Navaro has several suggestions for developing successful online courses based on findings from a survey of students enrolled in online finance courses. To begin, video lectures that are more personalized can be more engaging. Instructors should incorporate their personality into their videos and try to make the content entertaining. Shorter videos that incorporate visual graphics are more engaging than a "talking head" speaking to students. Navaro's findings from the student survey brings forth what he calls the 10 commandments for online learning which are listed below (2015). These commandments were initially made for online courses in the MOOC format but many of their key ideas can be applied to other variants of online courses.

1: Do NOT put yourself on camera for any extended per
2: DO stress high production
3: DO break each of the presentations up into short modules, 3-7 minutes
4: DO include interactive elements in the presentations. Quick quiz questions, check for understanding

5: DO make your multimedia presentation content. Keep current events out of lecture modules, so that they are still relevant in the future
6: DO proof everything very carefully. Many eyes will be watching
7: DO pay careful attention to copyright issues
8: Do NOT wing it. Use a script, be prepared to record lectures
9: DO have accurate scripts or transcriptions of your presentations and use them for captioning your course. This is important for hearing-impaired students and students who have learned English as a second language.
10: DO keep your user interface as simple as possible. Complicated UI can confuse and frustrate students

More researchers have found other useful tips beyond these 10 commandments. Having the same instructor teaching online and traditional classes is one way to help maintain this integrity between multiple formats of the same course (Blau et all, 2017). Another study titled "Student engagement in the online classroom" found that the following instructor behaviors led to improved student learning in online coursework.

1: Responding to student inquiries within 24 hours.
2: Providing detailed positive comments on student coursework.
3: Responding to most student postings in discussion boards.
4: Offering live chats on a weekly basis (Synchronous lectures or office hours).

Lastly, some amount of attention should be paid to academic integrity in the online classroom. It is important to be aware of test taking and cheating. If tests are taken asynchronously, student A could complete the exam and give the answers to student B. Consider making students sign a pledge of academic integrity and/or consider proctoring services such as ProctorU. Online proctoring services can assist in exam integrity, but keep in mind that proctoring can incur significant costs that can run about $30 for a 3-hour exam per student (Navaro, 2015).

Overall, there are several different approach to implementing online courses, but it is clear that if a university values their students educational experience, and if the university want to remain competitive with other institutions, then they must have a variety of course formats that meet the needs of the entire student body. The accelerated push towards online education may tempt universities to churn out as many courses as fast as possible, but this can result in low-quality course offerings that were sporadically converted to an online format. High quality should be stressed during the development of new and existing online courses, and these course offerings should build an institution's reputation rather than harm it.

Conclusion and Recommendations

In summary, many students are increasingly in favor of online coursework due to the increased schedule flexibility that online courses provide. UCCS currently offers more than a dozen undergraduate programs that can currently be completed by students entirely online; however, most of its 100+ programs cannot be completed without attending on-campus courses. This prevents most of UCCS's students from pursuing an online education and is potentially leading many students to other HLI's that offer their desired program entirely in the online format.

The vast majority of online college enrollment is concentrated in a small number of HLI's across the US, and UCCS has the opportunity to obtain a larger number of these online enrollments by remaining competitive in the online learning space by developing and implementing additional online courses that allow the completion of a wider breadth of degree programs via the internet.

There are many types of online course formats, and the right format will vary by course and by student. Furthermore, online coursework is not for everyone, and the university will be able to obtain the highest number of student enrollments by finding an appropriate balance between the number of online and in-person courses being offered. Student perspectives vary on online coursework, but studies have shown that online courses are perceived more favorably when course technology is intuitive, instruction is engaging, and students have an elevated sense of motivation to complete course assignments.

The development of new online courses can incur high upfront costs, but some course will cost less to implement than others, and in the long-term online courses have the potential to reduce certain operation costs while increasing overall course enrollment numbers. Furthermore, additional online courses allow the university to be more prepared to handle societal uncertainty like what the world has seen with the COVID-19 pandemic.

Online courses have many benefits, but they are not without problems. Many students in online courses may be overly challenged by the nature of the course format and may have a more difficult time absorbing the course material, thus leading to lower course marks. Moreover, academic integrity is more difficult to maintain in online courses compared to the on-campus counterparts.

Luckily, there are several studies that offer advice in improving online course offerings. Academic integrity can be maintained through pledges of integrity or online exam proctoring. Student engagement can be increased by adding instructor personality to videos, and by asking students questions to check their understanding during lectures. Professors should be attentive to and respond frequently to their online students. Instructors need new training for a new teaching environment. Quality in the in-person classroom is not a one-to-one comparison to the quality in

the online classroom. Online education is becoming more common and university faculty must adapt to new educational norms.

By acknowledging the increased demand for online coursework, and by utilizing the findings of what makes online courses successful, UCCS can better serve the postsecondary student population through the increased development of quality online courses. The first steps to increasing UCCS's online course catalog should be to

1: Survey the entire UCCS student body to determine interest in online courses
2: Use survey results to determine which courses and degree programs will have the highest enrollment potential.
3: Determine which university resources (budget, faculty, etc.) can be directed toward the development of additional online courses.
4: Plan development for high-quality online courses.

Face the changing needs of the postsecondary student population through the increased development of UCCS's online programs. In doing so UCCS will remain competitive among other learning institutions by providing a flexible learning model that allows a greater number of students to meet their educational aspirations.

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Appendix A – Figures from Secondary Research

Figure A-1 Online Enrollment Postsecondary Institutions Fall 02-11

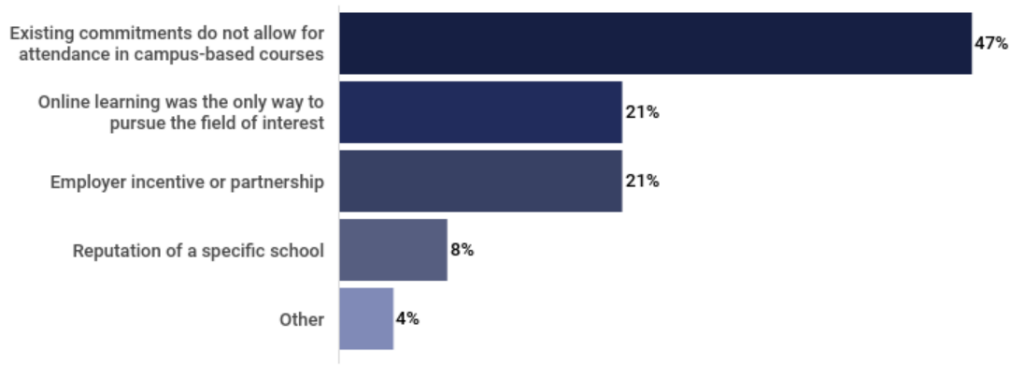
Table 1: Total And Online Enrollment In Degree-Granting Postsecondary Institutions—Fall 2002 Through Fall 2011

	Total Enrollment	Annual Growth Rate of Total Enrollment	Students Taking at Least One Online Course	Online Enrollment Increase over the Previous Year	Annual Growth Rate of Online Enrollment	Online Enrollment as a Percentage of Total Enrollment
Fall 2002	16,611,710	NA	1,602,970	NA	NA	9.6%
Fall 2003	16,911,481	1.8%	1,971,397	368,427	23%	11.7%
Fall 2004	17,272,043	2.1%	2,329,783	358,386	18.2%	13.5%
Fall 2005	17,487,481	1.2%	3,180,050	850,267	36.5%	18.2%
Fall 2006	17,758,872	1.6%	3,488,381	308,331	9.7%	19.6%
Fall 2007	18,248,133	2.8%	3,938,111	449,730	12.9%	21.6%
Fall 2008	19,102,811	4.7%	4,6606,353	668,242	16.9%	24.1%
Fall 2009	20,427,711	6.9%	5,579,022	972,669	21.1%	27.1%
Fall 2010	21,016,126	2.9%	6,142,280	563,258	10.1%	29.2%
Fall 2011	20,994,113	-.1%	6,714,792	572,512	9.3%	32%

Table from Allen and Seaman (2013, p. 36).

(Friedman, 2016)

Figure A-2 – Reasons for Online Learning by Students in 2018



(Bastrikin, 2020)

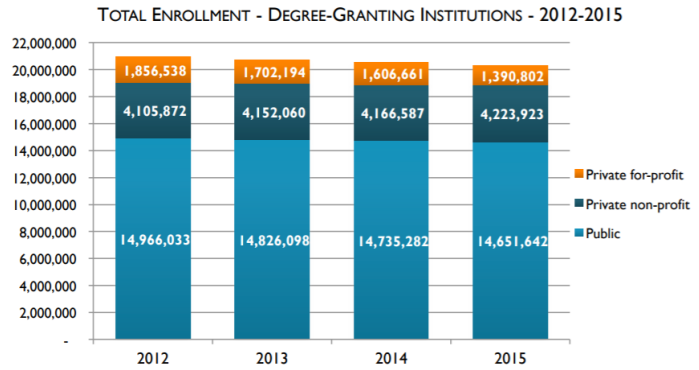
Figure A-3 Concentration of Distance Enrollments 2015

Concentration of Distance Enrollments - 2015

Number of Institutions	*Percentage of Institutions*	*Distance Enrollments*	*Percentage of Distance Enrollments*
9	0.19%	615,045	10.2%
47	1.0%	1,385,307	23.0%
235	5.0%	2,873,710	47.7%
471	10.0%	3,845,675	63.9%
3,354	69.3%	6,022,105	100.0%
4,836	100.0%	6,022,105	100.0%

(Allen et all, 2017)

Figure A-4 Total US Enrollment Degree-Granting Institutions 2013-15



(Allen et all, 2017)

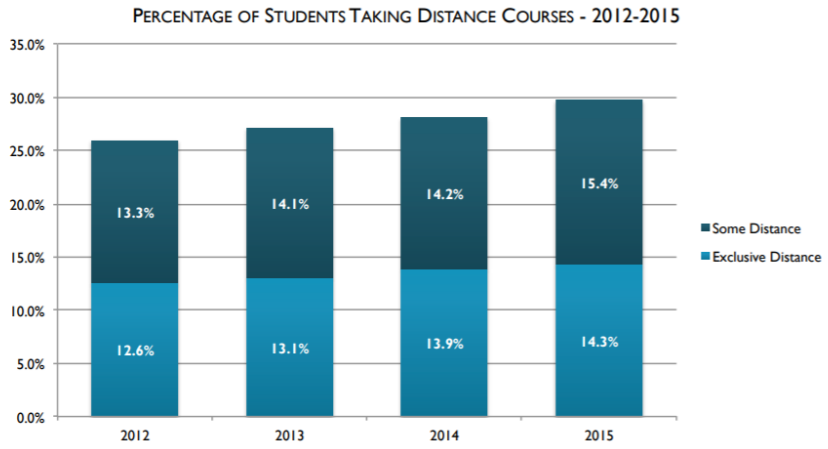
Figure A-5 Top 50 HLIs by Number Enrolled in Online 2015

Top 50 Institutions by Number of Students Taking at Least One Distance Course - 2015

Rank	Institution	ST	2015 Total Enrollment	2015 Distance Students	Percent Distance	Control
1	University of Phoenix-Arizona	AZ	165,743	162,003	97.7%	Private for-profit
2	Liberty University	VA	80,494	72,519	90.1%	Private non-profit
3	Western Governors University	UT	70,504	70,504	100.0%	Private non-profit
4	Southern New Hampshire University	NH	61,285	56,371	92.0%	Private non-profit
5	Grand Canyon University	AZ	69,444	54,543	78.5%	Private for-profit
6	Walden University	MN	52,799	52,799	100.0%	Private for-profit
7	American Public University System	WV	52,361	52,361	100.0%	Private for-profit
8	University of Maryland-University College	MD	50,248	48,677	96.9%	Public
9	Kaplan University-Davenport Campus	IA	45,355	45,268	99.8%	Private for-profit
10	Excelsior College	NY	43,123	43,123	100.0%	Private non-profit
11	Ashford University	CA	42,452	42,046	99.0%	Private for-profit
12	Capella University	MN	34,365	34,365	100.0%	Private for-profit
13	Ivy Tech Community College	IN	81,668	34,103	41.8%	Public
14	Brigham Young University-Idaho	ID	43,803	33,551	76.6%	Private non-profit
15	University of Central Florida	FL	62,953	33,034	52.5%	Public
16	University of Florida	FL	50,645	28,838	56.9%	Public
17	Florida International University	FL	49,782	26,341	52.9%	Public
18	Arizona State University-Tempe	AZ	51,984	22,809	43.9%	Public
19	Colorado Technical University-Online	CO	22,757	22,757	100.0%	Private for-profit
20	Chamberlain College of Nursing-Illinois	IL	23,250	22,114	95.1%	Private for-profit
21	Lone Star College System	TX	70,724	21,811	30.8%	Public
22	University of South Florida-Main Campus	FL	42,067	20,993	49.9%	Public
23	Columbia Southern University	AL	20,823	20,823	100.0%	Private for-profit
24	DeVry University-Illinois	IL	22,273	20,458	91.9%	Private for-profit
25	Full Sail University	FL	20,025	19,939	99.6%	Private for-profit
26	Houston Community College	TX	56,522	19,111	33.8%	Public
27	Arizona State University-Skysong	AZ	20,273	19,094	94.2%	Public
28	The University of Texas at Arlington	TX	41,988	17,541	41.8%	Public
29	Valencia College	FL	44,050	17,216	39.1%	Public
30	American College of Financial Services	PA	16,764	16,764	100.0%	Private non-profit
31	St Petersburg College	FL	31,767	16,501	51.9%	Public
32	California State University-Northridge	CA	41,548	16,130	38.8%	Public
33	College of Southern Nevada	NV	33,313	14,906	44.7%	Public
34	Texas Tech University	TX	35,859	14,826	41.3%	Public
35	Pennsylvania State University-Main Campus	PA	47,307	14,355	30.3%	Public
36	University of Cincinnati-Main Campus	OH	36,042	13,992	38.8%	Public
37	Kent State University at Kent	OH	30,067	13,754	45.7%	Public
38	Northern Virginia Community College	VA	52,078	13,421	25.8%	Public
39	Utah State University	UT	28,622	13,360	46.7%	Public
40	Thomas Edison State University	NJ	13,093	13,093	100.0%	Public
41	University of Houston	TX	42,704	12,961	30.4%	Public
42	Florida State University	FL	40,830	12,858	31.5%	Public
43	Embry-Riddle Aeronautical University	FL	13,740	12,857	93.6%	Private non-profit
44	University of Iowa	IA	30,844	12,784	41.4%	Public
45	Wilmington University	DE	15,002	12,745	85.0%	Private non-profit
46	University of North Texas	TX	37,299	12,517	33.6%	Public
47	University of Alabama at Birmingham	AL	18,333	12,371	67.5%	Public
48	North Carolina State University at Raleigh	NC	34,015	12,321	36.2%	Public
49	Cuyahoga Community College District	OH	25,449	12,266	48.2%	Public
50	Pennsylvania State University-World Campus	PA	12,242	12,242	100.0%	Public

(Allen et all, 2017)

Figure A-6 Percent of Students Taking Online Courses 2013-15



(Allen et all, 2017)

Figure A-7 Demographics Hybrid Student in Computing Course FA15-SP16

Table 1: Descriptive statistics for noncontinuous background variables—fall 2015 and spring 2016.

Variable	Fall 2015, $n = 453$[a]	Spring 2016, $n = 474$[b]
Gender		
Male	$n = 232$, 51%	$n = 235$, 50%
Female	$n = 221$, 49%	$n = 239$, 50%
Ethnicity		
Caucasian	$n = 274$, 60%	$n = 278$, 59%
Non-Caucasian	$n = 179$, 40%	$n = 196$, 41%
Commuter		
No (residential)	$n = 279$, 62%	$n = 278$, 59%
Yes	$n = 174$, 38%	$n = 196$, 41%
Currently working		
No	$n = 161$, 36%	$n = 184$, 39%
Yes	$n = 292$, 64%	$n = 290$, 61%

[a]453 out of 634 (72%) fall respondents provided complete noncontinuous background information.
[b]474 out of 546 (87%) spring respondents provided complete noncontinuous background information.

(Blau et all, 2017)

Figure A-8 Course Grade in Computing Course Hybrid & Traditional

		A-C		D		F		I		W		All
		#	%	#	%	#	%	#	%	#	%	N
Fall 2009	Hybrid	98	81.0	3	2.5	11	9.1			9	7.4	121
	Tradi	281	84.6	9	2.7	28	8.4	4	1.2	10	3.0	332
Spring 2010	Hybrid	168	70.0	15	6.3	25	10.4	3	1.3	29	12.1	240
	Tradi	231	73.6	15	4.8	36	11.5	3	1.0	29	9.2	314
Summer 2010	Hybrid	50	84.7	3	5.1	3	5.1	1	1.7	2	3.4	59
	Tradi	85	87.6			5	5.2	2	2.1	5	5.2	97

Figure 2: Retention Rates in the Introductory Computing Course

(Blau et all, 2017)

Appendix B – Figures from Primary Research

The following figures represent data from 10 UCCS students that were surveyed about their perceptions of online courses. The data was collected in July 2020.

Figure B-1 Reasons for Taking an Online Course

Reasons for taking an online course	Count
Schedule Flexibility	9
Prefered method of education delivery	3
I dislike in-person interactions with other people	2
The quality of online courses are superior	0
I have trouble making it to campus or getting around campus	3
The course was only available online	5

Figure B-2 Preferred Method of Course Delivery

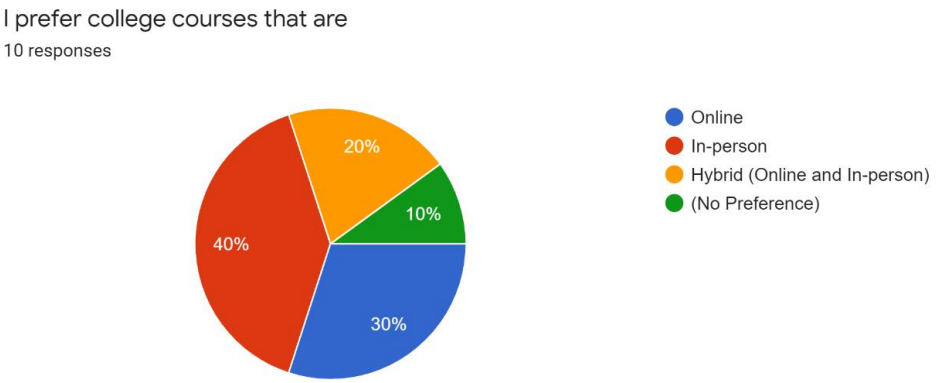


Figure B-3 Online Course Quality

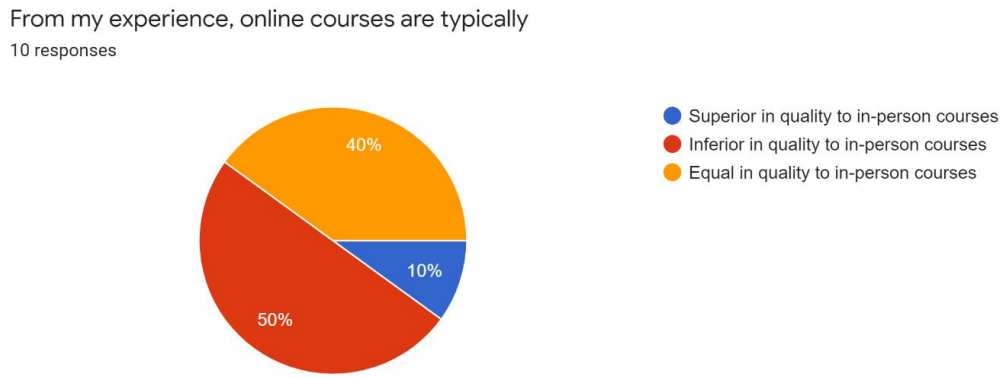


Figure B-4 Choosing an Online Program over an On-Campus Program

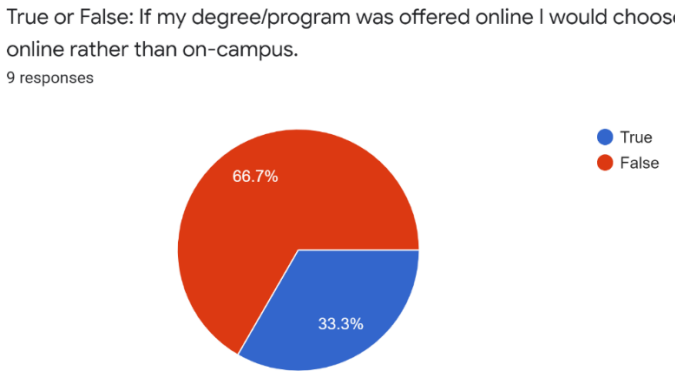


Figure B-5 Number of Online Undergraduate Course Offerings for Fall 2020 at UCCS

The following figure is a summary of the number of online courses, by department, that UCCS had intended to offer in Fall 2020 prior to schedule adjustments due to the COVID-19 Pandemic. These numbers were gathered from the UCCS Course Search tool in June 2020. (UCCS, 2020).

Number of Courses Offered Online by Course Subject at UCCS for Fall 2020 (Multiple sections of the same course are not counted)			
ACCT	2	HSCI	7
AH	5	HUM	1
ANTH	4	IECE	2
BGSD	1	IELM	2
BIOL	4	INDS	3
BLAW	1	INFS	2
BUAD	4	INOV	1
CHEM	11	JPNS	1
CJ	9	MATH	2
COMM	23	MGMT	4
COUN	8	MKTG	2
CS	2	MUS	2
DASE	1	NURS	5
ECON	3	OPTM	3
EDUC	5	PAD	2
ENGL	5	PES	1
ENGR	1	PHIL	7
ENTP	3	PSC	3
FNCE	2	PSY	3
GES	3	QUAN	2
GPS	2	SOC	12
HIST	6	SPED	4
HNRS	1	STRT	1
HPNU	2	SWRK	3
HRMG	1	TCID	5
		WEST	3

(Doucet, 2020)

Appendix C Qualitative Feedback from Students and Faculty

The following quotes are from students and faculty that participated in a survey about their experience with blended-learning (hybrid) courses at Georgia Gwinnett College.
(Napier et all, 2011)

Student Feedback

> "Makes me go home and do the reading or do the practice exercises. It is nice to finally be able to do what I need to do, when I want to."
>
> "I believe that I have learned more than I would have if I didn't have so much responsibility."
>
> "Having responsibility, and not having an instructor there at all times to tell you to complete my assignments, has helped me to focus more on my work and take my time when completing each assignment"
>
> "I think that doing so much work outside of class might sometimes be challenging, but it prepares you for the real world because there is no one there to guide you, which forces you to become more independent in a way."

Faculty feedback

> "Some material can be delivered just as well online and give students the opportunity to look at it when they are most prepared to do so, rather than on my timetable."
>
> “Course management software offer tools that promote communication with students in the ways that are more natural for them--things like sending instant messages, online chat, email notifications of new content being available, etc.”
>
> “Throughout the semester, some students increasingly grew concerned about their own time management and personal organization skills.”
>
> “Some students had trouble collaborating on team projects and developing a sense of community with other students in the class.”
>
> "This format seems to work best for disciplined, more mature students that like to work independently. In my class, I had some students that still preferred to be told everything instead of working on their own."