

PREPARING STUDENTS FOR SCIENCE, TECHNOLOGY, ENGINEERING,
MATHEMATICS, AND HEALTHCARE FIELDS -
A TWO YEAR COLLEGE APPROACH

by

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A professional paper submitted in partial fulfillment
of the requirements for the degree

of

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in

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ABSTRACT

The Becoming a Successful Student course offered at the Great Falls College Montana State University is designed to prepare students for future coursework by providing foundational study skills, time management, and goal setting. This study correlated the effectiveness of the Becoming a Successful Student Class with students interested in health science career and computer science tracks as well as STEM (Science, Technology, Engineering and Mathematics) field transfer programs by assessing student perception of effectiveness and then correlating that effectiveness with first semester Grade Point Average (GPA) on a 4.0 scale, along with credits attempted vs. credits successfully completed and then second semester mid-term GPA along with credits attempted.

Face to face interviews with competitive entry health science program directors and division directors also gave a look at the anticipated competencies that students should have prior to acceptance into a program or transfer to a STEM school.

The foundational framework of the Becoming a Successful Student applies to students that are new to the world of higher academics in order to reinforce and enhance previously learned skills in order to achieve success in future coursework. This also supports the mission of student retention by making the skills and knowledge to be successful able to be accessed by all new students.

Although, initially it appears that the course had little effect on the future preparedness of students, it is important to note that at mid-term many students still have an opportunity to drop or withdraw from courses that they will not be successful in. Also, the students with grades less than “B-” show the greatest increase in semester GPA at mid-term, suggesting that students who would not have been successful initially, obtained skills that they built on and reinforced their future success.

INTRODUCTION AND BACKGROUND

The importance of student preparedness in health science and computer science programs as well as Science, Technology, Engineering, and Mathematics (STEM) programs cannot be underestimated. Many students enroll in college shortly after graduating from high school to begin their academic journey. Yet, other students enter the workforce and then return to college to enhance their career prospects. The Great Falls College MSU is a two-year college with several competitive entry health science programs as well as several paths for students interested in computer science and STEM fields to complete the Montana University Core and transfer to a four-year STEM school.

In order to assist students in preparation for future academic pursuits as well as career assessment, the Great Falls College MSU requires new students and transfer students with less than 12 successful transfer credits to take a one credit course called *Becoming a Successful Student*. This is a course that is instructed by each Academic Advisor in addition to their other standard duties. The objective of this course is to provide a stronger foundation for student success regardless of their academic goals. STEM fields, computer science fields, and competitive entry healthcare fields often have rigorous coursework that a student may find they are underprepared for and are thus more likely to be unsuccessful or withdraw from college completely. The goal of this study was to review the course learning objectives and course goals as they apply to the competitive entry healthcare programs and computer science programs at the Great Falls College as well as the STEM transfer programs that are offered at the institution. The information would be applicable to administrators and course planning committees in

order to understand the impact that the course has on student preparation and development.

This study was designed to address the primary question: “How effective is the course, *Becoming a Successful Student*, in preparing students for the academic rigor of competitive entry health occupation programs or for transfer into a STEM program at a four-year university?” This is a paramount question when taken into the context that the primary training programs of the Great Falls College focus on health science, computer science and STEM program transfer. The following questions were also addressed by the study:

- How do students feel they were prepared for the rigor of advanced classes after taking this course?
- How do students specifically pursuing transfer to a four-year university in the STEM fields feel they were prepared by this course?
- How does this course demonstrate retention in adequately preparing students for their respective healthcare, STEM and computer science fields?
- How do students that successfully complete the course compare to students who do not successfully complete the course in their subsequent semester?

The following individuals formulate the support team for the study:

Grace Anderson-Research Analyst for Great Falls College MSU

Grace Anderson was selected as a support person for this study as she currently researches student enrollment, retention, and transfer rates. Specifically Grace has a vested interest in the success of this project due to the need to increase student retention and transfer rates

Sandra Bauman-Director of the Academic Success Center Great Falls College MSU

Sandra Bauman was selected for a support person since she coordinates the curriculum and learning outcomes for the *Becoming a Successful Student* course. Sandra is savvy to the various obstacles that will be present during the organization of data including semester length (prior to spring 2015), the change in textbooks (which occurred fall 2016) and other variables which may pose data corruption and skewed results.

Gregory Stivers-Academic Advisor Great Falls College MSU

Greg Stivers was selected as a support person since Greg has been teaching this course since its creation and inception into the academic programs in 2012. Greg has instructed through the various changes, textbooks and changing learning outcomes and can provide a great wealth of information regarding the focus and any potential data skews.

CONCEPTUAL FRAMEWORK

When considering the impact of preparation for college success, there are several good sources of information that place a strong emphasis and foundation on the need for student preparation by colleges.

One article by Anita Graham focused on adult student perceptions while they prepare for competitive entry programs. The author looked at how the student's perceived stressors and how they impact further education as well as their lives outside of academia. The author conducted several interviews of students which were recorded and transcribed. Interestingly, the author found that many participants expressed frustration and disconnect with the preparation for their future career programs (Graham, 2008). The author reported a noted correlation between the students' interest in the Health Sciences and their continued perseverance in the science fields. This article provided a great

foundation to understand the common link of student perseverance and preparation for the sciences.

One very interesting research article provided a great amount of insight into psychosocial factors that can act as predictors to college success, and did so by looking at student perceptions of happiness in their chosen career field, levels of stress and student time management, mitigating social obligations and perceived obligations as well as class communication and satisfaction with instruction. Measurements for this specific research were very in depth and covered GPA measurement as well as student surveys and interviews (Krumrei-Mancuso et al., 2013).

The overall results of the research indicate that “Academic self-efficacy and organization and attention to study were predictive of first semester GPA when controlling relevant demographic factors” (Krumrei-Mancuso et al., 2013, p. 113). This can provide a great foundation and reference when reevaluating life factor measurement and student success.

One article that looked at the theoretical foundation of student retention in the community college where the author of this article looks at the importance of separating college completion rates from the actual measurement of learning and retention at the community college level. The author examined the faculty expectations of community-college students and examine the amount of study and time spent completing coursework on the part of the student compared to that of four year universities. Interestingly, many of the students reported that they would often not discuss coursework or ideas outside of

the classroom with the instructors, which shows a more superficial relationship between faculty and students than was previously believed (Lipka, 2010).

When looking to address the methods of data gathering of the student success, one article provided substantial guidance (Ellis, Weyers, & Hughes, 2013). This article focused on adding to the current body of knowledge first by evaluating the documented student reactions to learning technologies prior to setting out to evaluate student reactions in a first year science course. The study itself followed the goals of my current AR study by examining student reactions to a specific course construct and reflecting on the information retained and experiences gleaned from the course itself. The foundation of the data gathering portion of this article utilized closed-ended questionnaires and the survey of a similar student demographic to that which I proposed to study. This article incorporated two different measurement scales within the questionnaire itself. The “Approaches to learning technologies” questionnaire was divided into two subscales: a deep approach subscale and a surface approach subscale. The former is oriented towards an approach that uses the technologies to cross reference ideas against well-known sources and with other course participants, to stimulate further research to enable critical thinking and to connect key ideas in the course to real world applications (p. 750).

The basis of finding a working methodology to study a class or a specific cohort of students can be challenging. Another research article that looked at the perception survey includes utilizing a Likert-scale assessment of 21 questions specifically tailored at looking the classroom delivery, student participation and perception of participation. The authors then compared the results to current known research comparing online courses

versus face-to-face courses. The authors devised an algorithm to identify student motivation and perceptions of information delivery which was then detailed in the discussion section (Horspool, A., & Lange, C., 2010).

Attrition in the Health Sciences is common at all college levels. An article titled, *Using the personal background preparation survey to identify health science professions students at risk for adverse academic events*, looked at how there are predictable factors that would contribute to the loss of interest or the feeling of failure in health science students (Johnson, Johnson and McKee, 2009).

When we look to understand what motivated one student more than another, we struggle to identify that internal conflict and motivation. The author looked to explain why some students identify with and excel in the Honors Program while others struggle or feel that they are not worthy. The author cited specific case studies of students that succeeded when they were sure they would be unsuccessful in both college and the Honors Program. The author came to a viewpoint of directorship but without being out of touch with the students in the program. Johnson struggled to find the student views of success and how each individual student defined and created their own form of a “tangible” success (Johnson, 2015).

When looking at student learning separate from a career focus or major, there was numerous empirical research regarding Vygotsky’s Zone of Proximal Development. One specific study looked at professional development of educators and that application to student development and retention (Ash, D. and Levitt, K., 2003). This study explored the changes that occurs in both the teacher and the student and showed that learning is

experienced reciprocally rather than one-sided. This is important in that student preparation for future coursework should involve the instructor sharing in the educational preparedness with each student, rather than just expecting that the student will take the skills and practices explored in the class to future coursework.

The importance of the student-student and teacher-student interaction within Vygotsky's Zone of Proximal Development was studied, while considering the implications of future student coursework. The importance of interdependence between students in preparation to enter the workforce was a focus in a 2014 study (Least, S. 2014). While this study focused on the K-12 educational system, it cannot be discounted for college coursework. One of the most important parts of this study was the focus that each learner learns and tests differently than every other learner. This is extremely important to keep in mind when considering that many students that attend a two year college will often state that they struggled in K-12 education and thus either were not selected to the four-year school of choice or after entering the workforce, wanted to return to academia in order to complete a higher education degree. Both of these groups of students would vary from the traditional student in that they have very different learning characteristics and often display various anxieties to testing. The author expressed a need for differentiated learning and the ability of the instructor to understand and aid each student independent of standard testing and instruction models.

METHODOLOGY

To fully correlate the effectiveness of the Becoming a Successful Student course with student perception of effectiveness, the students who fit the study demographics

were tracked from fall 2016 into mid-term spring 2017. Students that enrolled in the Becoming a Successful Student class in fall 2016 were offered an opportunity to participate in an online survey that looked to measure the student perception of the course itself in preparation for their future coursework at Great Falls College as well as preparation for transfer to a four-year university in the Montana State University System (MUS). The course learning outcomes and objectives as well as the College Learning Outcomes for the Becoming a Successful Student course can be located in Appendix A.

Next, the student population enrolled in the Becoming a Successful Student course in fall 2016 was followed into spring 2017 to evaluate the effectiveness of the course preparation for future coursework. There were several measurements of student progress in order to give a stronger view of student performance.

Finally, personal interviews with program directors and division directors were conducted to give a final view of whether students received the tools that they needed to be successful upon program acceptance or transfer to a four-year university.

Treatment

The Becoming a Successful Student course is a one credit course designed to equip new students to the Great Falls College with the tools and skills to succeed in current and future coursework. The course itself focuses on preparing students with general knowledge in study skill strategies including note taking, preparation for taking examinations, time management, and goal setting. Other items specific to the course and the Great Falls College are campus resources including financial aid, the Academic Success Center, utilization of tutors, Disability Services, as well as an opportunity to

meet one on one with the student's academic advisor to more fully identify support networks, college policies and procedures, and career planning. The specific Course Learning Outcomes are listed in Appendix A.

Some of the specialized goals of the course are preparation for workforce entry including specific focus on "soft skills" such as interpersonal communications, group work, group presentations, and "reflective journals" designed to increase student self-awareness of the student's motivation to come to college. These items are all part of the student's overall course grade received at the end of the semester which also include a chapter quiz from each of the seven chapters of the current textbook. There is not a final cumulative examination that is administered.

The overall structure of the course is designed to be run in an eight week or sixteen week semester and is lecture driven with some in class discussion activities. The primary faculty for the course includes the three Advisors from the Great Falls College Career and Advising Center (the director of the Advising Center does not teach a section) as well as the director of the Academic Success Center with one section of the course to be taught as part of the college contract. There are normally 14 sections of the course offered in each fall semester, eight sections of the course offered each spring semester and two sections offered each summer semester. The core curriculum, course learning objectives and textbook assignments for the course are standardized to the semester for each course offering while the bulk of the course instruction falls within adjunct contracts, and the adjunct faculty for the course can vary from semester to semester.

Instrumentation

The initial data gathering for the study began with the student survey (Appendix B) which was administered to current students in the *Becoming a Successful Student* fall 2016 eight-week course. Since one course module is eight weeks long, while another is 16 weeks, the second data collection occurred in December 2016.

Mid-term spring semester grades were used to evaluate whether the coursework of the *Becoming a Successful Student* course was beneficial to increasing student effectiveness as measured by Grade Point Average or GPA as measured on a 4.0 scale when fall 2016 and mid-term spring 2017 were compared. Spring mid-term evaluation was chosen for measurement, as this provides a clear view of student achievement prior to most students dropping or withdrawing from a course with a “W” rather than a “D” or “F” which in turn may artificially inflate a student’s GPA. The student credit load, or amount of attempted credits for fall and spring semester was also tracked. The final grades for fall 2016 have allowed for students to drop or withdraw from classes with no impact on GPA.

A final anonymous follow-up electronic survey (Appendix C) was administered to students that had taken the *Becoming a Successful Student* course in the fall and then registered for courses in the following spring semester near the end of the semester. This survey allowed for students to reflect on the course and if the skills from this course had impacted their current semester coursework.

Face to face personal interviews were conducted with program and division directors that oversee the competitive entry healthcare programs and transfer programs

offered at the campus. These interviews looked to correlate the goals of the course with the needs of program admission and successful completion or successful transfer by the student.

Table 1 below looked to revisit the initial AR questions for the *Becoming a Successful Student* course and identify the data collection source and relevancy to the study. The Data Triangulation Matrix looked to validate the information obtained from each source when applied to the AR question. It is important to note that most of the data relies on student perception and reporting of their perceived effectiveness of the course itself, while the grades from both fall and spring semester attempt to tie student perception to the overall effectiveness of the course tools and concepts provided in the fall semester.

Table 1
Data Triangulation Matrix

Question	Data Source 1	Data Source 2	Data Source 3	Data Source 4	Data Source 5
How effective is the course, <i>Becoming a Successful Student</i> , in preparing students for the academic rigor of competitive entry health occupation programs or for transfer into a STEM program at a four-year university?	Initial Student Electronic Survey	Follow-up Student Electronic Survey	Division and Program Director face to face interviews	Student Fall 2016 Credits Attempted Versus Credits Earned	Spring 2017 Mid-Term Grades-Sorted
How do students feel they were prepared for the rigor of advanced	Initial Student Electronic Survey	Follow-up Student Electronic Survey	Division and Program Director face to face interviews		

classes after taking this course?					
How do students specifically pursuing transfer to a four-year university in the STEM fields feel they were prepared by this course?	Initial Student Electronic Survey	Follow-up Student Electronic Survey	Division and Program Director face to face interviews		
How does this course demonstrate retention in adequately preparing students for their respective healthcare, STEM and computer science fields?	Student Fall 2016 Credits Attempted Versus Credits Earned	Spring 2017 Mid-Term Grades-Sorted	Division and Program Director face to face interviews		
How do students that successfully complete the course compare to students who do not successfully complete the course in their subsequent semester?	Student Fall 2016 Credits Attempted Versus Credits Earned	Spring 2017 Mid-Term Grades-Sorted			

While student perception of course preparation was important, the validation of the feeling of student preparedness was demonstrated by the GPA of the following semester. If a student earned higher grades in the Becoming a Successful Student course, the validation of the students' effective application of those skills will be applied to the

following semester GPA. The core measurement of student preparation is also determined by the needs and requirements of the division and program directors, essentially these individuals help to determine the Learning Outcomes for the Becoming a Successful Student course and validate the need for student preparation in program entry and STEM transfer.

The initial survey was presented to this student pool as an electronic survey as outlined in Appendix B and was available through the Desire2Learn Brightspace learning platform for one week prior to course completion and was open until one-week post course completion. While this study focused on students that are in the competitive entry health science, computer science, and Science, Technology, Engineering, and Mathematics (STEM) transfer programs, this survey was administered without regard to the student majors. The data were then filtered to focus on the specific student demographic of Pre-Healthcare and STEM focus as determined by the student's chosen degree major.

The initial measurement explained the student perception of course benefit. To obtain a more calculated value of the course, a measurement of semester GPA of the students who registered for Becoming a Successful Student was completed, filtering for those who fall within the study demographics. The following cumulative GPA of students who registered for the Becoming a Successful Student course in fall of 2016 was also obtained at mid-term of spring 2017. This analysis included credits attempted versus credits completed in fall semester in the event that a student withdrew from a course which would not negatively impact GPA, but would show that a student had not

successfully completed a course that they had registered to complete. Spring semester mid-term grades gave a snapshot of GPA before most students drop or withdraw from courses. This was a baseline measurement as to the overall effectiveness of the Becoming a Successful Student course when compared to later academic pursuits in which the essential skills intended to be strengthened would have the most direct impact.

The follow-up survey was administered late in spring semester and targeted specifically the students that fit into the study demographics and continued to attend the Great Falls College MSU in spring semester.

Face to face interviews with Competitive Entry Health Science Program Directors allowed for an understanding of what competencies are expected of students that are applying to the health science programs offered at the Great Falls College campus. An open invitation for interview participation was extended to all current competitive entry program directors as well as the health science and transfer division directors. The outline of the interview questions can be located in Appendix D.

The research conducted was exempt from the review requirement by the Institutional Review Board in accordance with the Code of Federal regulations Part 46, section 101 (b) 1 and (b) 2. The IRB exemption can be located in Appendix G.

Demographics

Great Falls College has a varied student population with a nearly 50/50 split enrollment between traditional and non-traditional student enrollment. Non-traditional students were classified as those students who did not continue college education directly after leaving high school and did not pursue college education for greater than one year.

The initial sample group consisted of a pool of 174 new or transfer students enrolled in the course. The students enrolled in the course were new students that had not been to college before or students that had transferred to the college with less than 12 credits that had been successfully completed from a transfer institution. These students were also students that had a declared career focus/major that corresponds with STEM transfer, computer science or preparation for entry into a competitive entry health care field offered at the Great Falls College.

DATA AND ANALYSIS

There were 244 students that registered for and completed the Becoming a Successful Student class in the fall of 2016. Of this number, there were 174 students that fit the study parameters and 48 direct student responses to the survey that were recorded and fit within the study guidelines relating to career focus/major or transfer to a four-year university.

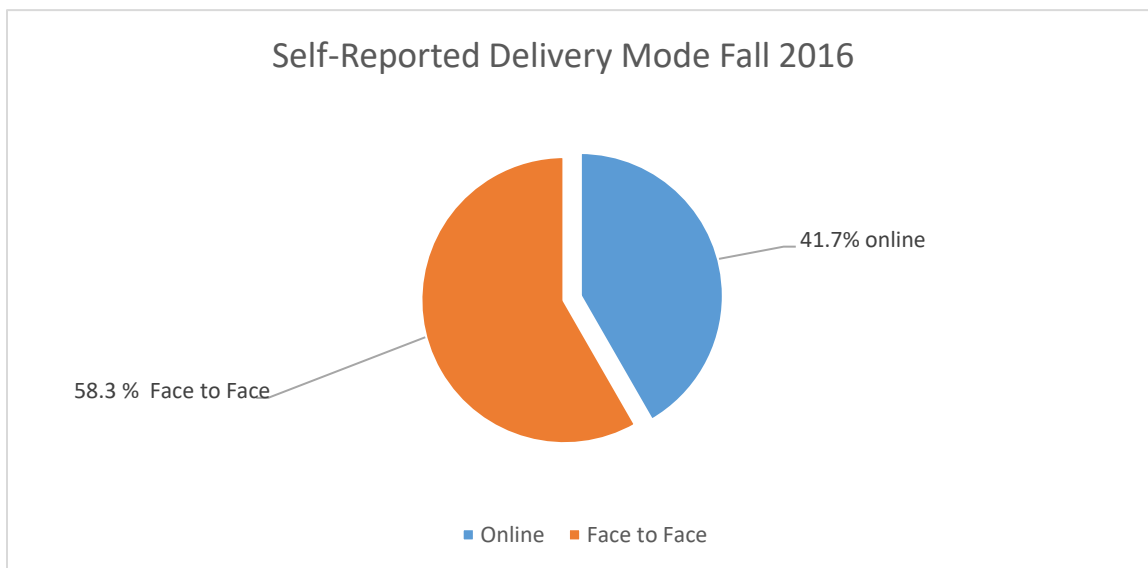


Figure 1. Delivery mode of course: online vs face to face, ($N= 36$).

Figure 1 displays the student self-reported makeup of online versus face to face delivery mode responses. This shows that of the students that did respond to the survey, a greater number of students were in a face to face course. Since a greater number of students from the face to face group completed the survey, the students may have felt more compelled and may have been reminded more often to complete the survey rather than seeing the survey as optional or as a news item that appeared in the online class.

Table 2 breaks down the student program focus/ major to look at the specific major/career focus that are filtered to fit the parameters of this study. This information was provided by the student and only from students who elected to participate in the study itself.

Table 2
Student Self-reported Degree Focus/Major (N=46)

Student career focus/Major	Count
Computer Programming	6
Dental Hygiene	4
General Education-Transfer	7
Physical Therapy Assistant	2
Practical Nurse	12
Registered Nurse	7
Microcomputer Support	1
EMT-Paramedic	1
Health information Coding	1
Medical Assistant	4
Respiratory Care	1
Total	46

The next set of data that was analyzed from the survey itself looked at the student perception of how much more prepared they felt after taking this course. Figure 2 and 3 look at the specific goals of the course as identified by the College Learning Outcomes

Assessment provided in the course curriculum. From the student self-reported data, time management and goal setting (both career and educational) were the highest reported perceived preparedness areas experienced by students. Self-motivation, taking an examination, and interdependence were noted by students as perceived to be the least prepared areas upon completion of the course. Please keep in mind that this information is from the student perception of how adequately prepared they felt after taking this course when considering taking future college courses. Many factors go into the student perception of preparedness including the individual student's comfort level when considering their course load in the next semester. Students often will discuss future courses, instructors and even course layout with other students following a similar path, this may impact a student's perception of adequate preparedness as well.

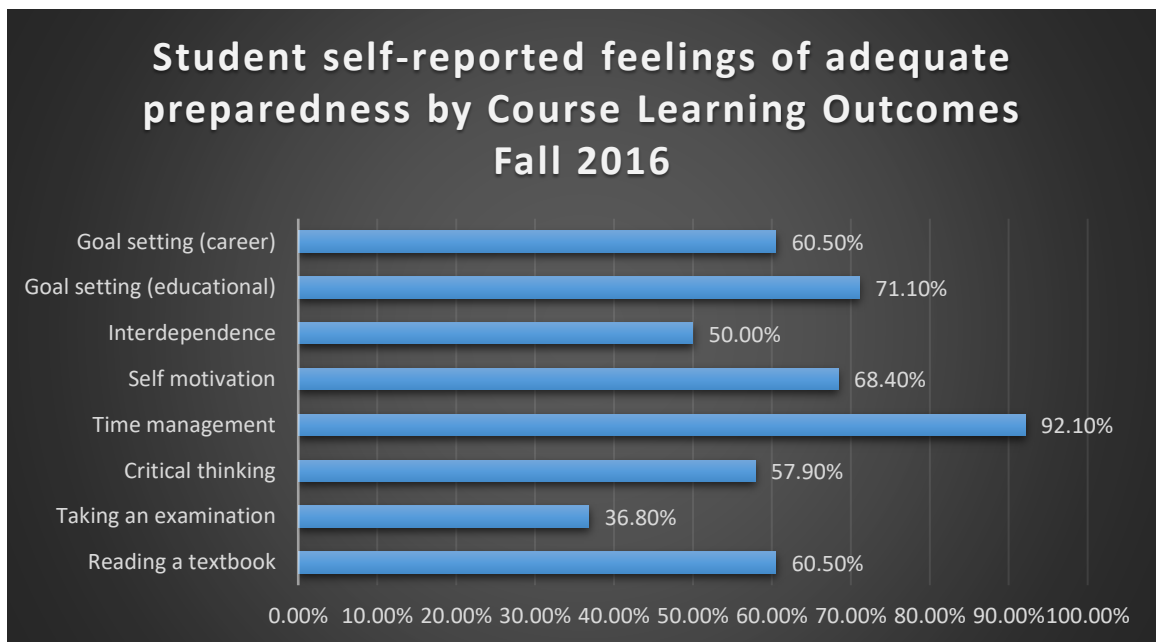


Figure 2. Student perception of adequate preparedness, ($N=46$).

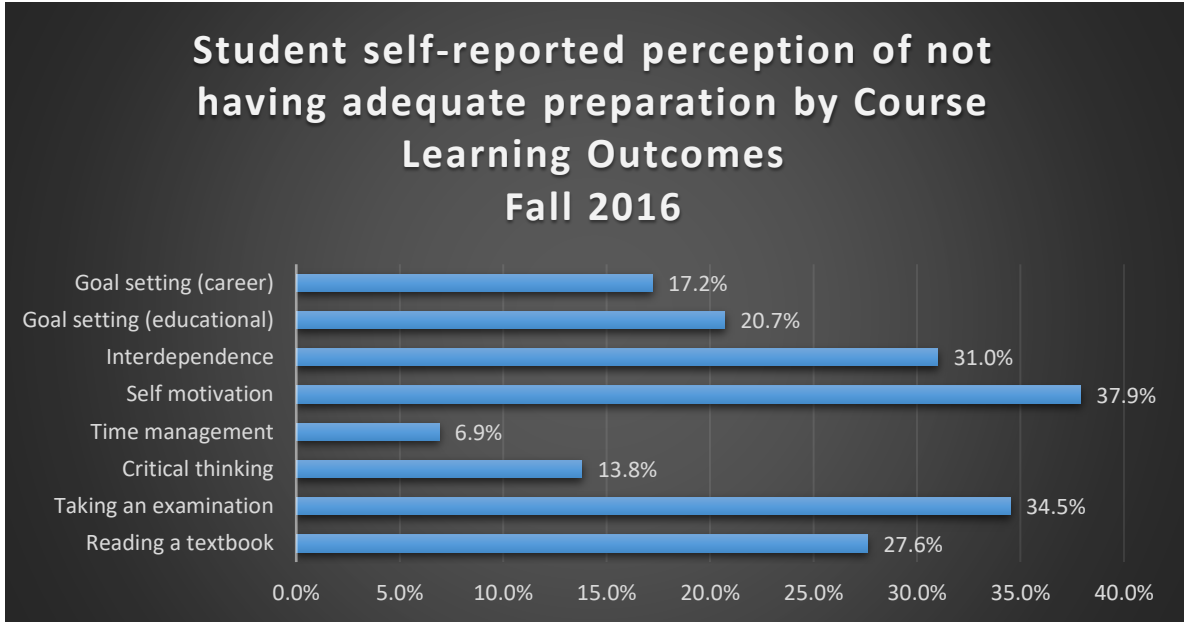


Figure 3. Student perception of not being adequately prepared, (N=46).

Figure 3 identifies areas in which students do not feel that they were adequately prepared when considering taking future college courses. Please keep in mind that this data should be compared to figure 2 and again is specific to student perception of preparedness. Again, this is the students’ perception of areas where they are not feeling adequately prepared for future course work.

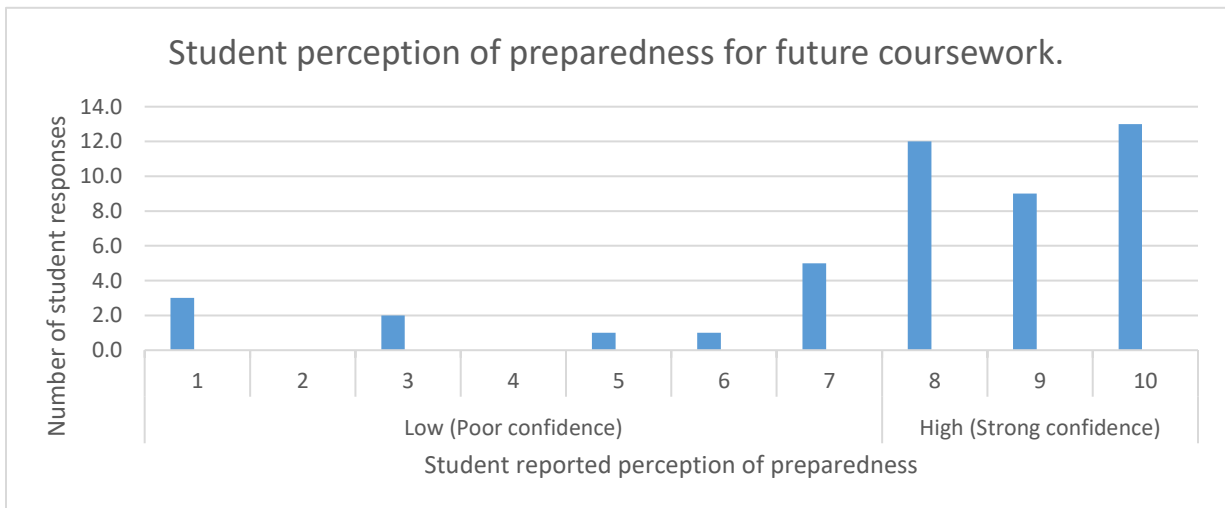


Figure 4. Student perception of preparedness for future courses. (N=46).

Figure 4 looks at the specific student perception when considering how prepared they feel when considering taking future courses in their major field and Figure 5 specifically looks at the student feeling of preparation when considering application to a competitive entry Health Science program or STEM field. From the two figures, student presented a more confident look at future coursework than their overall feeling of preparedness when considering their overall future in either transfer or within the healthcare field. This perception may stem from a feeling of uncertainty for long-term plans while there is more confidence in short term upcoming coursework related to the students' major.

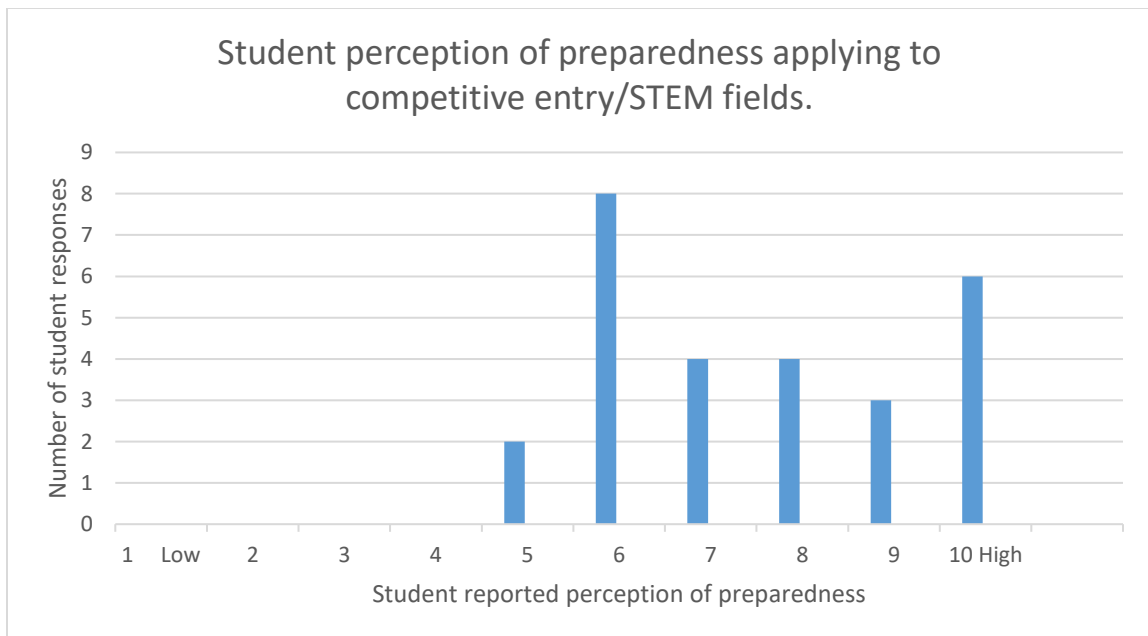


Figure 5. Student perception of preparedness applying to competitive entry/STEM fields, (N=27).

Other data gathered from this specific survey asked the students to identify what they feel would better prepare future students that will be taking the course in

consideration of future college courses. This was an open-ended question leading to various responses outlined in Appendix E. The information in Appendix E is important since it allowed the students an opportunity to voice their views on the course objectives and the topics covered in the course. It also allowed the students to reflect on what information the current course setup offered or items that may have been lacking, although keeping in mind that these students have not been exposed to years of college courses and may have a minor skewed perception of what courses will be required later on. Out of 24 responses, four students reported that the Becoming a Successful Student course covered the topics that they needed to be successful while 17 students responded that they did not have any additional comments. One student reported that the course should include more information about courses related to their major and a second student reported that further test preparation including discussing lab examination preparation would be beneficial. A final student reported that the course was “useless” and a “money grab” since the information that is presented “are either covered in high school or by living life” and that the student found no value in the course being required.

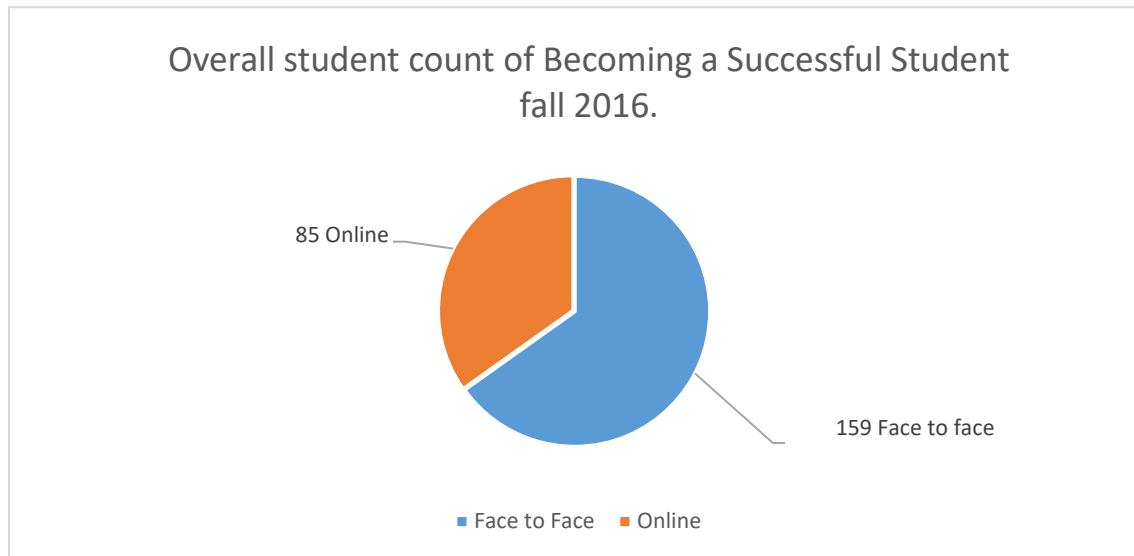


Figure 6. Actual delivery mode of course: Face to Face vs Online.

Moving away from the student perception of the effectiveness of the course, we now look at the course directly. Figure 6 focuses on the overall number of students enrolled in the Becoming a Successful Student course regardless of career focus/major.

Since the delivery method is not present when final grades are recorded, the number was not able to be filtered to represent an actual count for the study demographics. Figure 7 looks at the length of the Becoming a Successful Student course. There were 29 students that attended the full semester course while 215 students attended the 8 week course. Again, this information is not filtered for study demographics as the course length was not measured in final grade outcome. Overall, 65% of the students that attended the Becoming a Successful Student course in the fall semester attended face to

face while 35% of the students attending fall semester attended the course in an online delivery format.

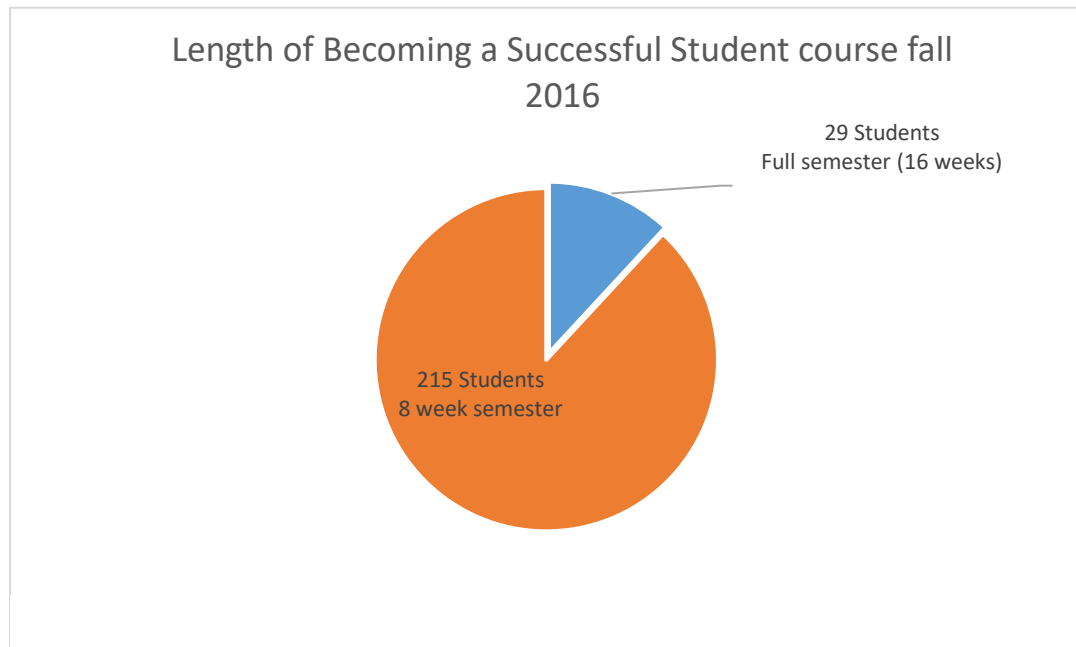


Figure 7. Length of course: eight weeks vs. sixteen weeks.

Table 3 represents the actual student career focus/major listings of the students enrolled in the Becoming a Successful Student course for fall 2016 after filtering for students that fit within the study demographics. General Education-transfer has the largest number of students at 99 students with this as their career focus/major. The General Education-Transfer degree offered at the Great Falls College MSU is designed to transfer to a four-year university and allow the student to have completed the primary core-components of an overall Bachelor degree so that the student can then focus on the core concentration in the chosen field of study. One of the reasons that this number may reflect an inflated look at transfer students is that to qualify for financial aid, a student must be degree seeking. If a student is unsure of a career focus or major of study, the

student will often be listed as General Education-Transfer until they refine a direction of study. This can give a much larger number where students may not actually be intending to transfer into a STEM field at a university but may later choose another career path.

The General Education-Transfer makes up 57% of the target student demographic for this study while Pre-Nursing students are the second highest career focus/major at 17%.

Table 3
Student Degree Focus/Major. (N=174)

Career Focus/Major	Student count
Computer Assistant	1
Computer Programming	3
General Education (Transfer)	99
Health Information Coding Specialist	5
Health Information Technology	1
Network Support	1
Pre-Dental Hygiene	13
Pre-Medical Assistant	8
Pre-Nursing (Both CAS-PN and ASN RN)	30
Pre-Paramedic	4
Pre-Respiratory Care	5
Pre-Surgical Technician	3
Web Design	1
Total	174

When considering that a student must maintain a cumulative GPA of 2.0 to remain in academic good standing; fall 2016 end of semester grades were posted with 49 students being placed on Academic Probation for the following semester (a student not achieving a semester GPA of 2.0 or an overall GPA of 2.0 if this is a subsequent semester), nine students were suspended after fall 2016 semester (a student that was on Academic Probation the previous semester and did not achieve a semester GPA of at least 2.0 in fall 2016) and 101 students were in Academic Good Standing at the conclusion of Fall 2016 semester. This information is further broken down in Appendix D where credits

attempted, credits successfully completed and semester GPA is outlined by career focus/major.

Mid-term spring semester grades were used to evaluate whether the coursework of the Becoming a Successful Student course was beneficial to increasing student effectiveness as measured by Grade Point Average or GPA when compared to fall 2016 and mid-term spring 2017. Spring mid-term evaluation was chosen for measurement as this provides a clear view of student achievement prior to most students dropping or withdrawing from a course with a “W” rather than a “D” or “F” which in turn may artificially inflate a student’s GPA. In calculating spring GPA at mid-term- the grades “N/A”, “P”, “S”, and “U” were not included in the calculation of the overall GPA. The students were sorted by the grade that they had achieved in the Becoming a Successful Student course. It is also important to note that out of the initial 174 students measured in Fall 2016 only 118 returned enrolled in courses in spring semester. Ten students had been suspended which leads to 46 students that did not enroll in spring semester but were not academically suspended.

There were 79 students that achieved a grade of “A” or “A-” and of these students 27 had an improvement in their spring GPA and four students had no change in their GPA. There were 48 students that had a decrease in their GPA at mid-term as opposed to end of term at fall. The average GPA for students that achieved a grade of “A” or “A-” in fall semester was 3.21 and the average GPA for these same students was 2.78 on a 4.0 scale. The average credit load that was carried by these students was 12.01 in fall and

11.73 in the spring. Figure 8 provides a visual representation of the GPA changes for these students with percentages rather than raw numbers.

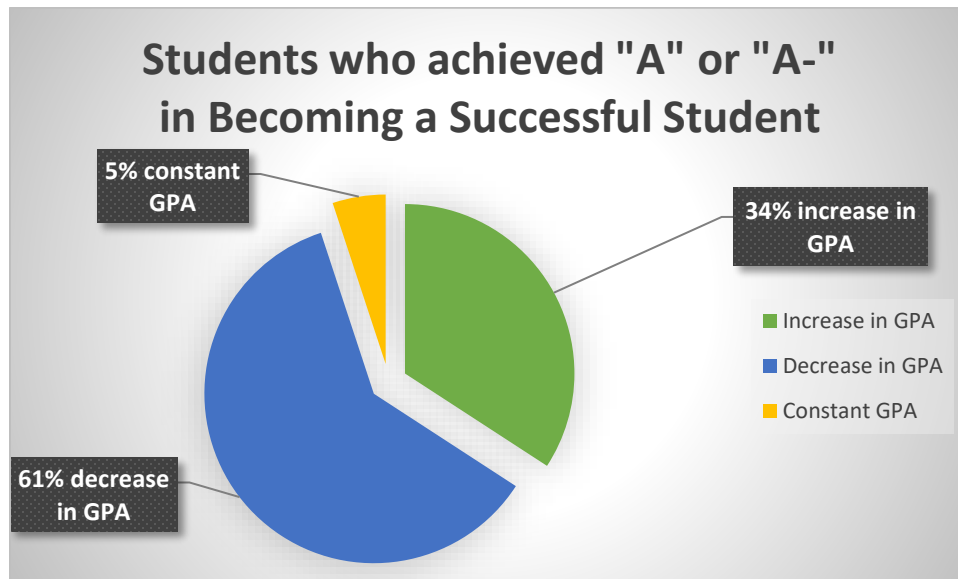


Figure 8. Students who received an "A" or "A-" in "Becoming a Successful Student" in Fall 2016 with GPA followed to mid-term spring 2017, ($N=79$).

There were 20 students that obtained a "B+", "B", or "B-" in the Becoming a Successful Student course in fall 2016 and of these students, eight had an increase in their GPA when compared to fall semester while 12 had a decrease in their GPA when compared to fall semester. The average GPA for these students in fall was 2.58 and the average GPA for spring semester at mid-term was 2.02 on a 4.0 scale and the average credit load for these students was 12.85 in the fall semester and 12.55 credits in the spring semester. Figure 9 gives a visual representation of the student GPA changes by percentage rather than raw number.

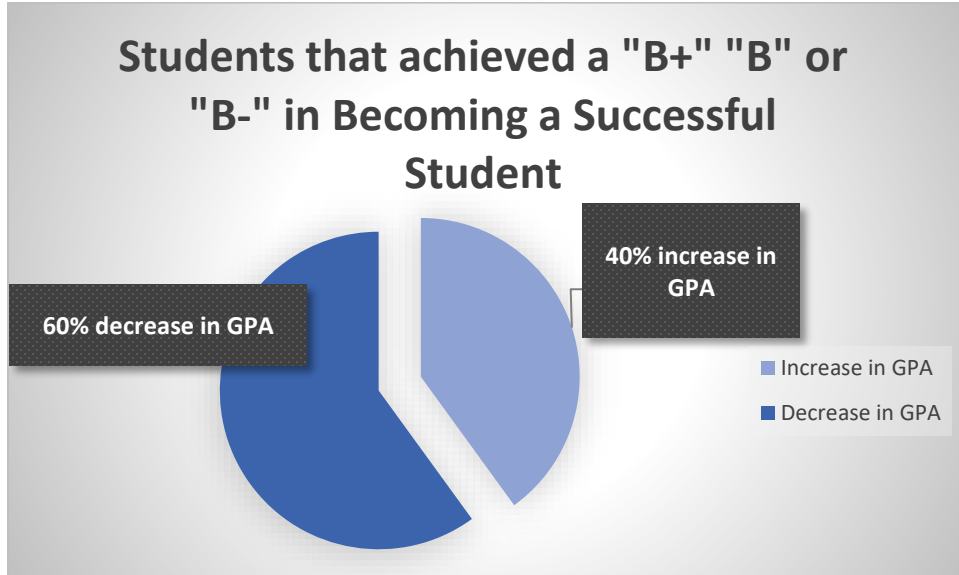


Figure 9. Students that have achieved a "B+", "B" or "B-" in "Becoming a Successful Student" with GPA followed to mid-term spring 2016, (N=20).

The data from figure 8 when compared to Figure 9 both show similar amounts of student GPA changes where the greater number of students had a decrease in GPA. When this information is compared to data from the next two figures, there appeared to be a trend that students that do well in the Becoming a Successful Student course struggled at mid-term the following semester.

There were eight students that obtained a "C+", "C", or "C-" and of these students five experienced an increase in their overall GPA at mid-term when compared to fall semester and three students experienced a decline in their overall GPA. The average semester GPA for these students in fall semester was 1.86 and this average GPA decreased to 1.69 on a 4.0 scale at mid-term spring 2017. The average credits carried by these students in fall was 11.63 and average credit load carried by these students in spring

2017 was 10.88. Figure 10 gives a visual representation of the changes to GPA by percentage.

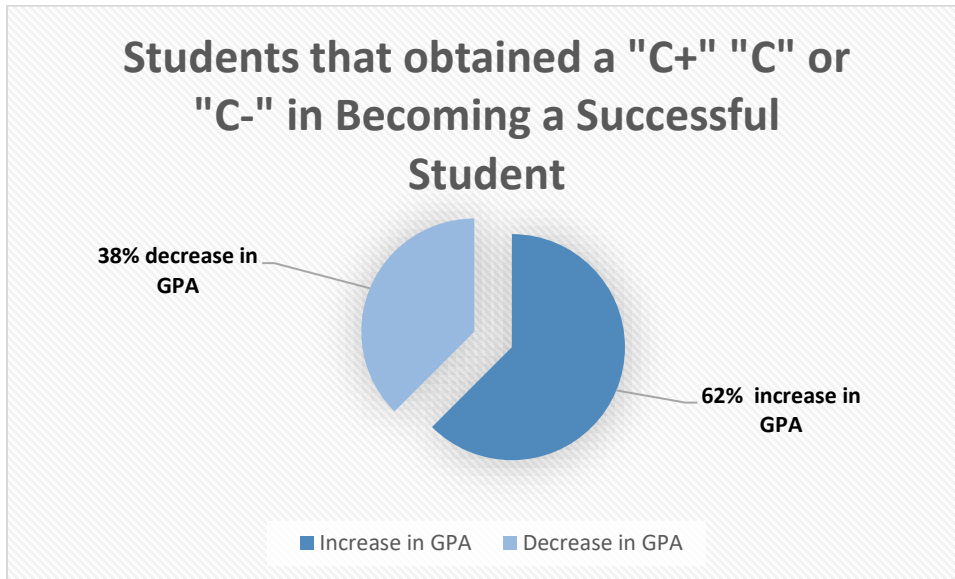


Figure 10. Students that have achieved a "C+", "C" or "C-" in "Becoming a Successful Student" with GPA followed to mid-term spring 2016, (N=8).

Fascinatingly, students that obtained a "C+", "C" or "C-" in the Becoming a Successful Student course experienced the highest improvement in overall GPA the following semester at mid-term with an overall increase of 62%. This is most likely correlated to the fact that there only eight students that obtained this grade that continued on to spring semester which leads to the fact that a majority of students did not fall to the "middle of the road" and either did exceptionally well or very poor in the class, which may apply to the academic rigor experienced in the course itself.

There were 11 students that achieved a "D+", "D", "D-", or "F" in the Becoming a Successful Student in fall 2016 and of these students there were four students that had an increase in their overall GPA and four students that had no change in their GPA from

fall 2016 to spring 2017. There were three students that had a decrease to their overall GPA at mid-term spring semester. Overall, the average semester GPA for these students in fall semester was 0.98 and at mid-term spring 2017 the average GPA was 0.96 on a 4.0 scale. Figure 11 gives a visual representation of the GPA impact by percentage rather than raw number.

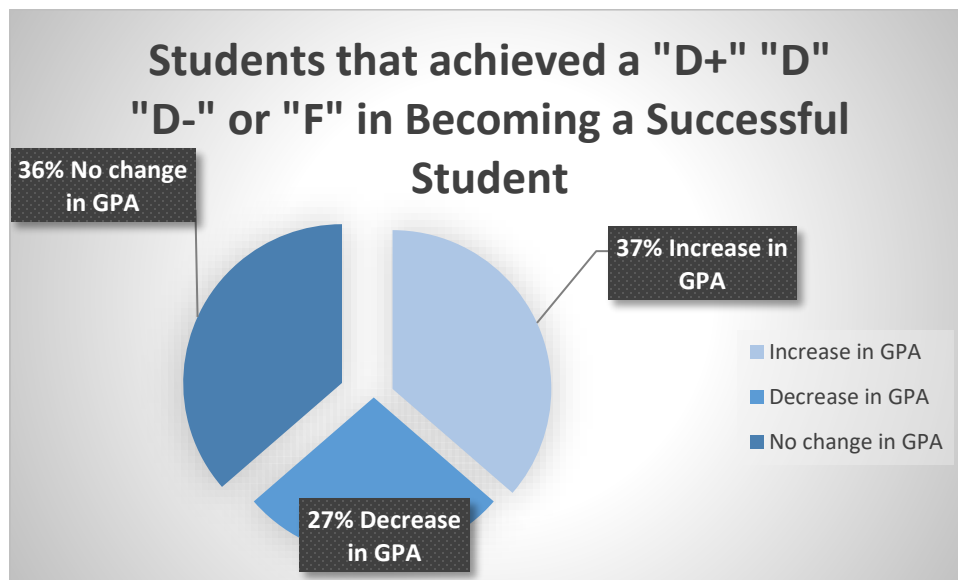


Figure 11. Students that have achieved a "D+", "D", "D-" or "F" in “Becoming a Successful Student” with GPA followed to mid-term spring 2016, (N=11).

This group of students are not considered to have successfully passed the Becoming a Successful Student course, but 37% of these students (4 students) showed an increase in their overall GPA at mid-term spring semester which may indicate that there were skills that they had acquired in the course that led to a benefit when taking their spring courses.

When comparing this student grouping as a whole, the average GPA overall at the end-of-term fall 2016 was 2.80 and at mid-term spring 2017 the GPA of these students

was 2.41 on a 4.0 scale, leading to an overall decrease of 0.39. The overall credits attempted (not credits successfully completed) in fall 2016 was 12.18 while the credits attempted (not credits successfully completed) for spring 2017 was 11.66 leading to a decrease in 0.52 credits attempted overall.

When fall 2016 student credits attempted versus credits successfully completed (counting all 174 students and not just students that continued into spring semester) were compared, the average credit load attempted was 11.77 credits with a successful completion of 8.43 credits. Successful completion would be counted as a grade in a credit bearing course of at least a “D-” or higher. A “W” or withdrawal from a course was not factored into a student’s overall GPA calculation, but was reflected in a course not successfully completed when calculating the overall credits attempted versus credits successfully completed. This would therefore indicate that the average for this student demographic is 3.34 credits not successfully completed after attempt when taking an average of 11.77 credits or rounding upwards-a standard full credit load of 12 credits. Since most courses offered are three credits, this would be the equivalent of failing or withdrawing from one out of four courses or 25% of the class load for each student.

The follow-up survey with students that continued in spring semester was completed with 39 student responses that fit within the study demographics. Figure 12 shows the self-reported grades that the students achieved in the Becoming a Successful Student course in fall 2016. Please note that “+” and “-” have been eliminated and a student could only select the letter itself to provide more consistency in data analysis.

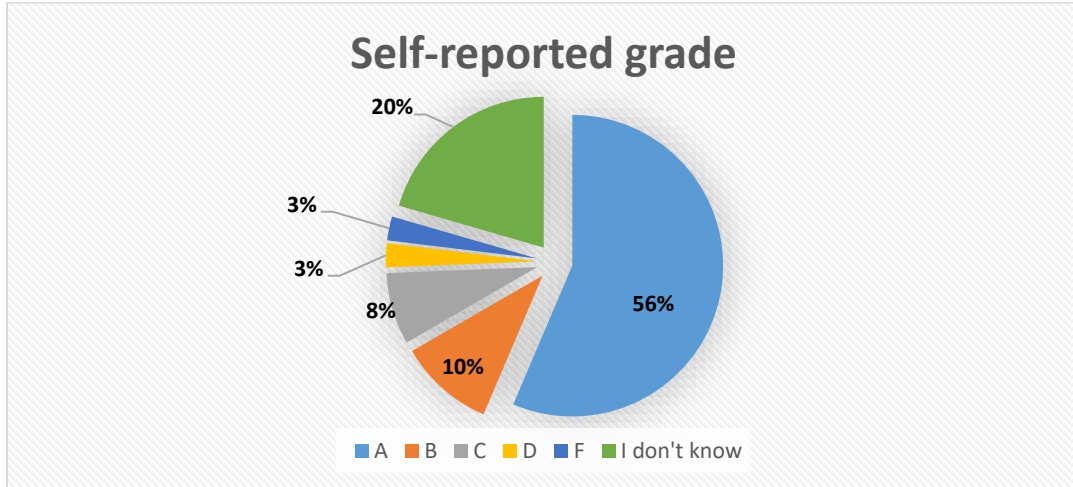


Figure 12. Student self-reported grade achieved in “Becoming a Successful Student” course fall 2016, (N=39).

Figure 12 shows a consistent measurement of over half of the self-reporting students having a grade of “A” which can be assessed in the overall number of students that have achieved this grade in the fall semester, the number 56%, is a self-report of 22 students. Eight students, or 20% reported that they could not recall what grade they had achieved in the fall semester course.

Table 3
Student Self-Reported Degree Focus/Major. (N=39)

Degree focus/Major	Number
Computer Programming	7
Health Information Tech	1
HICS	2
General Education/Transfer	15
Pre-Medical Assistant	4
Pre-Nursing	10
Total	39

Table 4 is the listing of student self-reported degree focus/major listings to give an idea of the student demographic makeup of students completing the survey. The

largest numbers of students reside within the general education/transfer and pre-nursing categories. The greater numbers in both of these majors reflect the current demographics.

Table 4

Self-Reported Semester Credits Attempted in Spring 2017. (N=37)

Credits taken	Students
Less than 6	0
Six to nine	7
Nine to twelve	24
12 or more	6
Total	37

Table 5 shows the student self-reported credits attempted in spring 2017. It is interesting to note that no students self-reported taking less than six credits (the minimum amount for federal student loans) and only six students reported taking 12 or more credits in the spring semester. The greatest number of students, 24, reported taking between nine and twelve credits in the spring semester.

Figure 13 displays the responses by students from spring semester that reported that they had found a benefit to the skills that they had learned in the Becoming a Successful Student course in the previous semester, there were 39 students that responded to this question. The students that responded to the survey reported that the greatest skills

that they found beneficial in the following semester were both time management and self-motivation. Interestingly only four students found that goal setting for a career was

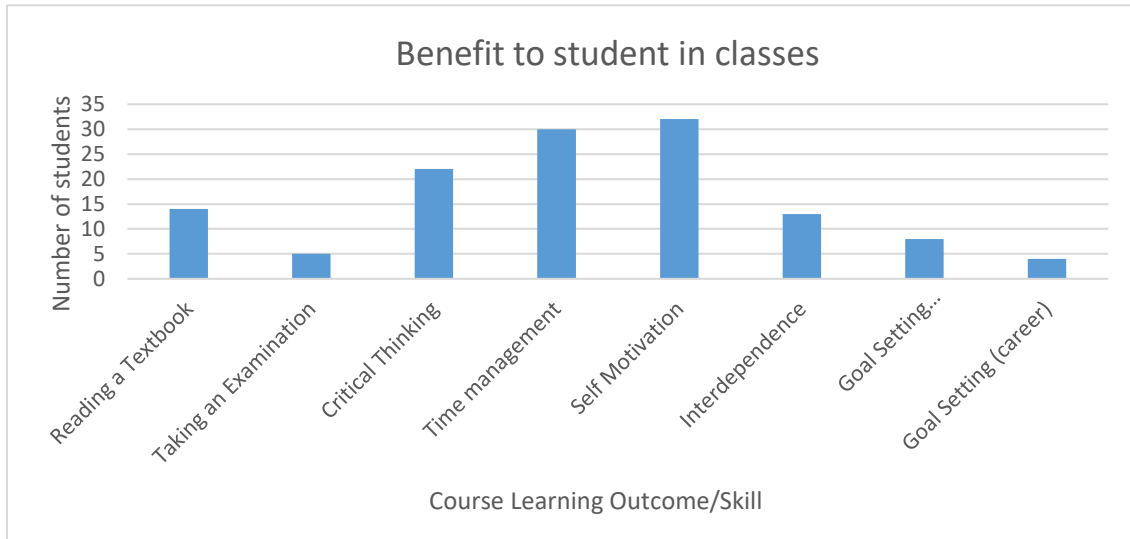


Figure 13. Student self-reported skills that have been a benefit from the “Becoming a Successful Student” course in the fall semester, ($N=39$).

beneficial while only five students found that the preparation for taking an examination was beneficial to them. Educational goal setting was also low with only eight students finding benefit in this area from the course.

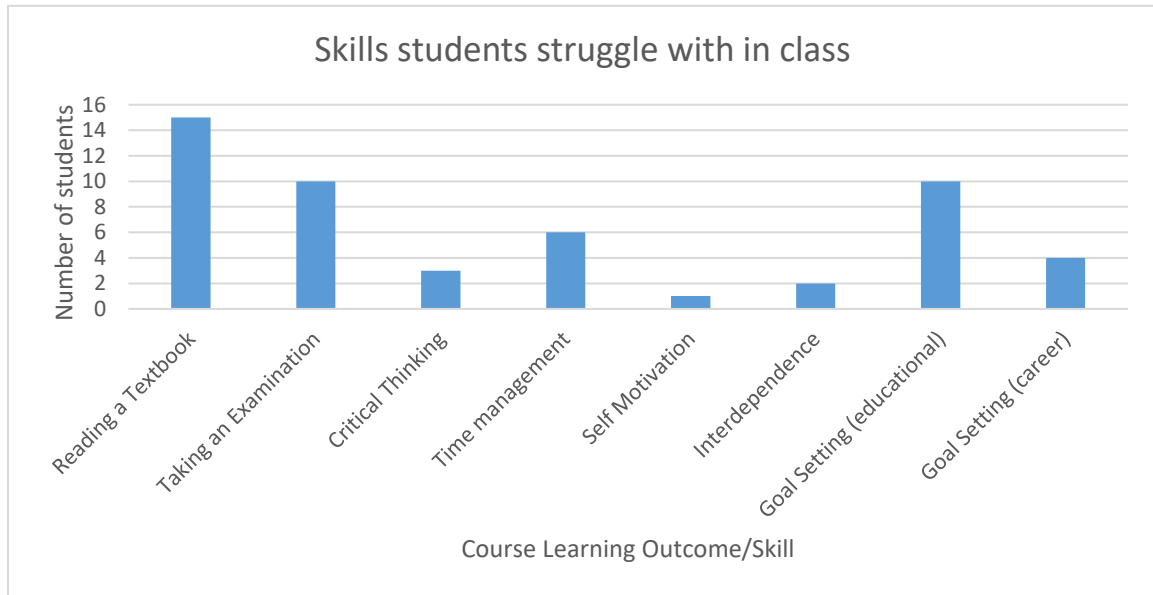


Figure 14. Self-reported skills that students still struggle with after taking the “Becoming a Successful Student” course, ($N=18$).

Figure 14 looks at student self-reported struggles with skills that were addressed in the Becoming a Successful Student course in fall 2016. Only 18 students responded to this question with 15 students reporting that they still struggled with reading a textbook. Still 10 students reported that they struggled with taking examinations as well as setting educational goals. Six students reported struggling with time management and only one student reported that they struggle with self-motivation.

Figure 15 shows the students’ perception of whether the Becoming a Successful Student course was a benefit to their future academic coursework. Only 36 students responded to this question but 22 students reported that the course had some benefit to their courses in spring 2017 while 14 students reported that they did not find any benefit by the course. Strangely, there were no comments entered in the open-ended comment

area of the survey itself which would have allowed student's to more fully articulate their feelings of the benefit or non-benefit of the course. This may have been due to the fact that the survey was administered near mid-term examinations, leading to students rushed for time.

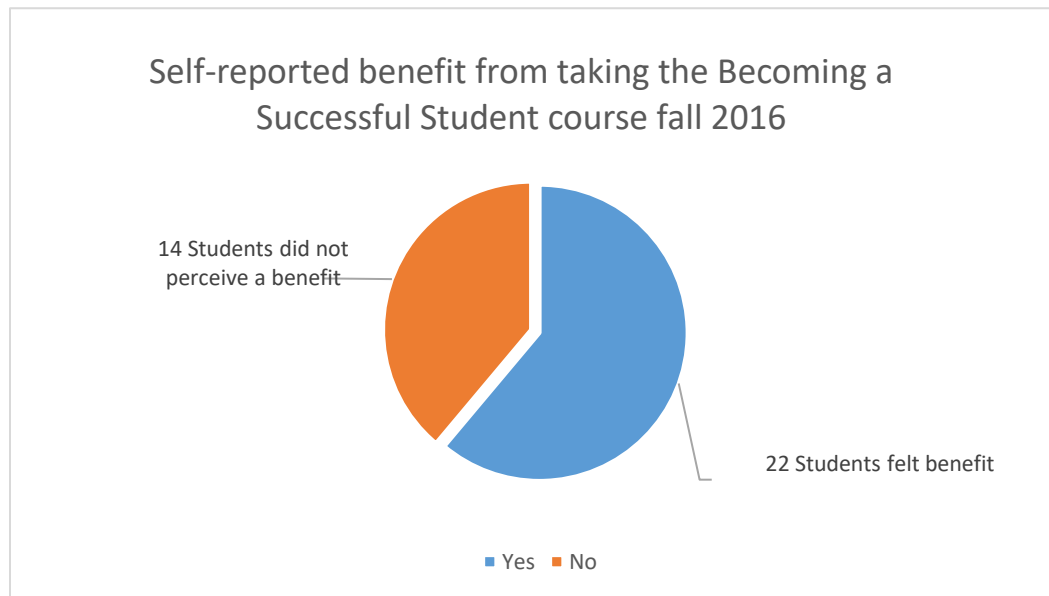


Figure 15. Student self-reported benefit from taking the “Becoming a Successful Student” course in fall 2016, ($N=36$).

Interviews with Competitive Entry Health Science program directors and division directors were conducted to ascertain the director's views on student competencies upon acceptance to their selected program or prior to transfer to four year universities in STEM fields. There were a total of six Competitive Entry Health Science program directors including Dental Hygiene, Paramedic, Nursing (both LPN and RN), Respiratory Care, Surgical Technician, and Physical Therapy Assistant as well as two division directors, one division director for the Health Sciences Division and one division director for

General Education, Business, Trades, Technology and Transfer. Interviews were conducted with the participants being granted anonymity in order to allow for more candid responses. Therefore, program directors will be identified as P.D. followed by a number used just to track responses and division directors will be identified as D.D. followed by a number used to track responses. For example, if Joe Schmoe oversaw the Laser Eye Removal Program, he may be listed as P.D. 1.

Of the program directors, four directors chose to participate in the study and both division directors chose to participate in the study. Interviews were conducted utilizing the interview tool located in Appendix B.

The Health Sciences program directors at the Great Falls College MSU all teach as faculty within their specified programs as well as identify the criteria of admittance into their specific program. As such, program directors have direct interaction with students admitted to their program. Taking into consideration that students must apply for admission to specific Health Science programs due to limited classroom space and availability of off-campus clinical sites, students must complete a specific number of pre-requisite courses which vary for each program. Yet, each program director was asked what basic academic skills are expected upon admission to their program and if there are any deficiencies or lack of preparation that are exhibited by students upon entry to the program. P.D. 1 stated that upon entry to the program it is expected that students possess “Independent study skills, information location and verification of resources (eg. Internet sites), ability to communicate both orally and in writing, strong ethics, strong mathematical skills and drug calculations as well as a strong scientific background.” P.D.

I also stated that there is a noticeable lack of “Knowledge based concept application and critical thinking. Students want to be told what to do or how to obtain an ‘A’ but do not have the self-drive or motivation to learn outside of the classroom.”

P.D. 2 reported that students should have self-motivation and be able to work in diverse teams. P.D. 2 explained that “What I see the most is that students are not used to working with diverse personalities in groups. When you go to a job site, you have to be able to get along with everyone else. Students need to know how to get along with those they don’t always agree with.”

“Students need to be able to write cohesively and clearly, be able to document reports with good grammar and punctuation. They have to be able to interact with the patient and their families.” P.D. 3 explained, “Time management is a big issue for students in the first semester, if they did their pre-requisite courses part time and then have to be full time for their program it is a big event.”

P.D. 4 reported that attendance was the biggest skill set missing from students admitted to programs, “I think we do it wrong, a student might miss days in a pre-requisite course, but still get a good grade. But when you enter the program a no call/no show at a clinical site can mean you fail. If you miss my classes, this can substantially impact your understanding of the material.” P.D. 4 took this concern one step further and explained that the college can put more emphasis on attendance in early coursework, “They are here for a job, to better their career and themselves. They should respect the opportunities that they have been given.”

When considering ways that the Great Falls College can strengthen early coursework and empower students, P.D. 1 offered that source validation in resources is a necessary item when learning how to research. P.D. 2 explained that the group projects and group interaction are essential, “Students need to work together and collaborate. Students need to work with those they don’t always get along with because once they get out into the real world, their boss isn’t going to move them to a different team because one person doesn’t see eye-to-eye.” P.D. 2 also explained “There needs to be grading consistency for all students, I know of too many times when the syllabus says one thing and the instructor is willing to waive that requirement for that student. If that happens here, it sets a bad precedent for what a student expects their future employer to hold them accountable to.”

Most program directors found a consensus on the academic skill sets and mentalities that successful students, both entering the program and successfully completing the program exhibit. P.D. 4 stated, “They realize that they can do anything, they see that I can explain how to do something one day, they can study it overnight and then perform that same task without error the next day. They just need to not be afraid to try.” P.D. 1 related to this by stating, “They know what they want for their end goal. They make sure they don’t fall behind in their studies and they know that from their past work that they will succeed.” P.D. 3 also mirrors the previous comments by stating, “They did the hard work in their pre-requisite courses, now they get to apply that hard work and see why what they learned is so important-they have so much more confidence.”

Program directors all reported that many of the skills needed to be successful in the program came from course completion prior to application, yet P.D. 1 reiterated, “Some skills just can’t really be taught until you are in the program, being in very close proximity to someone who you haven’t ever met before is a challenge to many students.”

Division directors offered an insight that is unique to student success. D.D. 1 explained that division directors do not normally see students unless there is a problem, but that as a director the position oversees accreditation for programs and regional accreditation for transferability of credits. Division directors were included in the study as they offer a specific insight as to what four year universities in Montana expect and require from STEM transfer students.

Both division directors reported that strong communication skills-both verbal and written are required for future pursuits. D.D. 2 explained that “math foundation for calculus sequence; humanities and fine arts as well as the culture of college” are all required for a successful transition to a four year university. D.D. 1 explained that the student needs to be sure that they can analyze and interpret data accurately and then apply it to the field that they are working in.

When speaking with division directors regarding transfer within the state of Montana, it was noted that many students have reported back to D.D. 2 that they have struggled upon arriving at their transfer school for various reasons. D.D. 2 explained that, informally, students have reported that they have to search out various services at a larger campus as well as “they weren’t prepared for the bureaucracy of the larger campus.” D.D. 2 also reported that students reported that they did not receive as much help or

assistance at a larger campus and that they were unprepared for the large class size. It is important to note here that the average class size of the Great Falls College-MSU is 25 students both online and face to face. D.D. 2 also stated, “Some students have reported feeling alienated in some capacity since they did not start at the university as a freshman but rather joined as a junior.”

D.D. 1 explained that time management is something that she often hears about both from faculty and students when considering entry into various Health Science and STEM programs. “Students don’t realize that there are so many hours in a day and that a full course load, scheduled clinical coursework and family life outside of school all add up.” D.D. 1 reiterates that prior to students applying to Health Science programs or considering to transfer to a university, “They really need to look and see what is involved, they (the student) need to know what they are getting into.”

Since many students have reported struggles to the division directors, it is important to note what has been done to help students be successful. D.D. 2 outlined, “We really strive to assist students in being aware of deadlines, especially transfer deadlines. We have them meet with future advisors, have transcripts reviewed ahead of time so there aren’t surprises. In the past, as a college we have taken the 1+3 Engineering Students to MSU Bozeman for a day to orient them to the campus. Our biggest focus is to get them to the future college campus so they can get used to the idea.” D.D. 1 explained that to combat the time management issues before they become a concern, “Our programs have a boot camp to help them understand and prepare for the pace of program entry. At

my previous school we used a visual display and outlined each student's future schedule to help them understand their obligations.”

From the perspective of the division directors, successful students completing health science, computer science, and transfer to STEM programs, there are specific attributes that both directors have seen that assist students: self-advocacy and an ability to speak up for him/herself. Both directors explained that this key attribute can make all the difference when the student is struggling or feels discouraged. D.D. 1 also reported that students that spend time on campus in face to face classes and study groups “form a tight bond that helps when they begin their program or if they transfer, can help them to adapt to the new campus much more quickly.”

INTERPRETATION AND CONCLUSION

The data gleaned from this study showed that the correlation of a higher grade in the Becoming a Successful Student course is inversely proportional to the success of the student in the subsequent semester. Since these students were still enrolled in courses that they struggled in and were at risk of failing, many students will drop their unsuccessful courses with a “W” which will not be calculated in their end of term GPA. Fascinatingly, students that obtained a grade of less than “B-” in the Becoming a Successful Student course showed the strongest increase in GPA at the end of the study.

There may be many factors in the inverse success rate of the students studied, with the strongest indicator being the rigor of the course itself. Since the course is a one-credit course, the academic rigor is one third that of a standard three credit course. Therefore, many students may be successful in the course and perceive that the skills and

learning outcomes of the course itself will benefit them. When the time comes to implement the skills obtained in the course, a student that is highly successful in the Becoming a Successful Student course (defined by obtaining a “B-” or higher in the course) may experience a sense of overconfidence, especially if the topics covered in the course were a review to the student and they did not sense a benefit (as illustrated by several open ended comments located in Appendix C).

The students that participated in the survey in fall 2016 expressed an overwhelming feeling of preparation for application to competitive entry programs and most students expressed feeling prepared for future coursework as demonstrated by figures 5 and 4 respectively. This is not mirrored in the student success in the subsequent spring semester. Also, when considering student perception of feeling adequately prepared with course learning outcomes, a greater number of students expressed feelings of positive preparedness when compared to feelings of not being prepared as demonstrated by figures 2 and 3. When taking the follow-up survey into consideration, it can be seen that almost half of the responding students reported that their greatest feelings of not being prepared relate to reading a textbook and taking an examination.

Since the Great Falls College MSU is an open campus and admission is only dependent on a high school diploma or high school equivalency, this may also be a factor, as students who do not necessarily have a strong desire to complete coursework to the best of their ability or students that enroll to gauge if they feel like they are college ready. Many students that are undecided on a career path will often enroll as a General Education-Transfer student (since non-degree students do not qualify for Federal

Financial Aid) which can lead to a disproportionate number of students that may not actually be focused on transfer to a four-year university but are exploring college options.

While the numbers at mid-term may show a large decrease in GPA, it is important to note that at Spring end-of-term, many students will have dropped or withdrawn from unsuccessful classes which will show a rebound in GPA since prior to this point the student may believe that they have an opportunity to increase their grade but with the final withdrawal date approaching, students will reconsider the impact to their GPA.

Interviews with program directors and division directors showed a strong correlation of expectations of student preparedness to the course learning outcomes for the Becoming a Successful Student course. Therefore, when all factors were taken into consideration, including student perception of preparedness, overall increase in GPA by students that obtained a “C+” or less, and division and program director interviews, it would appear that the students that need the skills provided in the course the most, do receive them and are able to meet the expectations of the directors in preparation for program entry and transfer.

When we consider the initial AR question of how effective the Becoming a Successful Student course is to future student coursework, it is important to correlate the Course Learning Outcomes with the overall student perception of success as well as student performance at mid-term in spring. Initially it appears that since most of the material covered in the Becoming a Successful Student course is introductory, students that have previous experience with the skills might discount or find less value in the coursework, therefore completing the work just to obtain a final grade rather than strive

to master the material. This also can be correlated with the open-ended comments within the initial survey.

Since the Becoming a Successful Student course is one credit, the academic rigor is one third of that of standard three credit classes, and the amount of work and meeting times throughout the semester are decreased from other more rigorous courses. With the reduction in class time and limitations on the amount of work, the value of instruction for this specific course may not be as strong as it would be for a class that had a higher credit load and more academic rigor. Further focus on the core class curriculum as well as the academic rigor in various topics is a future topic for study.

VALUE

The student demographic of a two-year college is very different from a four-year university. This can be seen in overall student performance as noted in various previous studies. Simply, to afford students an opportunity for a college education without college testing entrance requirements opens the door to students who may not possess the important study skills or college preparedness that other students have. The student demographic seen in this study is substantially different than that seen a four-year university. There are many opportunities for follow-up studies that exam the preparedness that we, as a two year college, prepare students for a future in the MUS system.

First and foremost, it is important that the final end-of-term GPA for these students be measured and compared to that of spring mid-term. This effort will be two-fold-first to see if the overall GPA at end-of-term will be increased compared to that of

end-of-term fall 2016. The second implication will be to assess the possibility of GPA inflation by student withdrawing or dropping courses with no negative impact on semester or cumulative GPA. While it is important that students do not feel “trapped” in a course they enroll in, to constantly be afforded the opportunity to withdraw from courses that a student struggles in can provide a false sense of success and can also encourage a student to not necessarily work to their potential if they know they can drop a class and then retake it with no academic consequence.

This study also brings the need to evaluate the rigor of the course. If the students perceive that they will be successful with the skills provided, but then in the subsequent semester falter and are unsuccessful with the tools provided, there is a potential disservice provided to the students. If the rigor in specific course requirements are increased and others are decreased, for example a decrease in the focus of goals and an increase in exam preparation may lead to more academic success, but less focus in student futures.

The results of this study also directly focus on the course outcomes for the Becoming a Successful Student course and can show a need to focus the core-curriculum more on taking examinations and reading a textbook. There is also an opportunity to review whether this course is appropriate to be required for all students rather than a strongly recommended course for those that feel they are lacking in the core curriculum skills. Further follow-up studies addressing these specific items may yield a stronger view of course success with the various student populations that are seen at the two year college campus since this student population often differs greatly from the four-year university student population.

Recommendations can be made that the core learning outcomes where students feel less prepared can be focused and strengthened in order to better prepare students for future coursework. A review of the academic rigor of the course related to the course learning outcomes can also be a positive benefit from this study as well. An evaluation of the requirement for the course for new students can also stem from the results of this study-essentially to look at making the course optional rather than required may change the student perception and participation within the course.

When looking at the raw numbers, it can be deceiving in that it would almost appear that the course itself has a detrimental impact on future student coursework. It is important to keep in mind that many students have not yet had an opportunity to fully understand what courses they are struggling in and which courses they should consider dropping or withdrawing. This also leads to an important discussion on dropping and withdrawing from courses at mid-term if a student will not be successful. To drop or withdraw from courses will raise the student GPA of courses that students were unsuccessful in; also at the end of term, courses where students had a grade of “P”, “S” or “U” will be calculated into the overall GPA. Therefore, it would be best to pull final grades after they have been recorded and compare with both mid-term and the previous semester in order to fully appreciate the impact that the Becoming a Successful Student has had on these students.

The division director over the Becoming a Successful Student course as well as the Director of the Academic Success Center are both very interested in how we can better prepare our STEM, computer science, and students considering application to the

competitive entry healthcare fields for their future coursework. The importance of student success and retention is of direct value at the Great Falls College and the information that comes from this study will be integrated into future course constructs of the *Becoming a Successful Student*. As an Academic Advisor and as an instructor for this course, the information gleaned from this study can help to enhance the important foundational instruction that first year college student need to be successful in their future coursework.

REFERENCES CITED

- Ash, D. and Levitt, K. (2003). *Working within the Zone of Proximal Development: Formative Assessment as Professional Development*. Journal of Science Teacher Education. Vol 14 No. 1 pp. 1-26 Retrieved from: https://people.ucsc.edu/~dash5/publications/pubs/ash_lev.pdf
- Ellis, R., Weyers, M., Hughes, J. (2013). *Campus-based student experiences of learning technologies in a first-year science course*. British Journal of Educational Technology. Vol 44 No. 5 pp. 745-757. Retrieved from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8535.2012.01354.x/abstract>
- Graham, A. (2008). *Adult College Students' perceptions on science education: Reclaiming lost ground in science education in preparation for Health Science Programs*. Lakehead University, Ontario. Retrieved from: http://uncw.edu/cte/et/articles/vol12_3/volume1203.pdf
- Hospool, A., Lange, C. (2012) *Applying the scholarship of teaching and learning: student perceptions, behaviors and success online and face to face*. Assessment and Evaluation in Higher Education, 37:1, 73-88. Retrieved from: <http://dx.doi.org/10.1080/02602938.2010.496532>
- Johnson, C.W., Johnson, R., McKee, J., Kim, M. (2009). *Using the personal background preparation survey to identify health science professions students at risk for adverse academic events*. Advancements in health science education. Pp. 739-752. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/19214393>
- Johnson, M. (2015). *Tangible and intangible student success*. Journal of the National Collegiate Honors Council. Fall/Winter 2015 V 16 No. 2 Retrieved from: <http://digitalcommons.unl.edu/nhcjournal/468/>
- Krumrei-Mancuso, E.J., Newton, F.B., Kim, E., Wilcox, D. (2013). *Psychosocial factors predicting first-year college student success*. Journal of College Student Development. Vol 54 No. 3 pp. 247-266. Retrieved from: <https://krex.k-state.edu/dspace/bitstream/handle/2097/16418/NewtonJCollegeStudentDev2013.pdf?sequence=1>
- Least, S. (2014). *Differentiated Instruction: Its effect on proximal development*. The College at Brockport: State University of New York. Education and Human Development. Paper 532. Retrieved from: http://digitalcommons.brockport.edu/cgi/viewcontent.cgi?article=1512&context=eht_theses
- Lipka, S. (2010). *Community colleges must focus on quality of learning*. The Chronicle of Higher Education. (Nov. 2010). Retrieved from: <http://chronicle.com/article/Community-Colleges-Must-Focus/125344/>

APPENDICES

APPENDIX A

BECOMING A SUCCESSFUL STUDENT COURSE LEARNING OBJECTIVES

Course Objectives	Aligns with the Following Program/ Degree/Division Outcomes	Type of Course Objective: <i>Introductory, Reinforce, or Emphasize</i>	Assessment Tool Used to Determine if Course Objective Has Been Achieved	Great Falls College MSU College Learning Outcomes
Students will be able to apply personalized learning and study skill strategies to daily college course work.	Realistic self-appraisal: Focuses on areas of academic ability and interest and mitigates academic weaknesses	introductory	-Personal study skills -Learning Styles assessment Journal	CLO 3
Students will be able to understand their interests and values and develop the ability to establish and work toward short-term and long-term personal, academic, and career goals.	Personal & educational goals: Determine personal and academic goals and objectives	introductory	-Success journals - Smarter Measure	CLO 3, CLO 4
Students will be able to identify and utilize campus resources and interpret college policies and procedures.	Meaningful Interpersonal Relationships: Creates relationships with fellow students, staff, faculty members, academic advisors, and other institution staff to be engaged with the institution in a meaningful way	introductory	-Campus Resource Activity - Advisor Meeting -MCIS Activity	CLO 1, CLO 2, CLO 5

Course Objectives	Aligns with the Following Program/ Degree/Division Outcomes	Type of Course Objective: <i>Introductory, Reinforce, or Emphasize</i>	Assessment Tool Used to Determine if Course Objective Has Been Achieved	Great Falls College MSU College Learning Outcomes
	Social responsibility: Understands the requirements of the codes of conduct; has knowledge of institution governance systems			
Students will be able to establish greater self-awareness and develop self-management strategies.	Clarified values: Analyzes personal, work, and lifestyle values and explains how they influence decision-making in regard to course selection, course load, and level of personal involvement in the campus community	introductory	<ul style="list-style-type: none"> -Success journals - Backup plan - Financial wellness meeting -Time management goal setting 	CLO 3, CLO 4

GFC MSU – College Learning Outcomes:

All graduates will engage in learning activities that enhance their professional and personal lives, as well as their communities. During their academic careers at Great Falls College Montana State University, students will engage in learning activities that demonstrate:

CLO 1 – Effective Communication: The active expression and exchange of ideas through listening, speaking, reading, writing or other modes of non-verbal or artistic expression.

CLO 2 – Technical Literacy: The ability to form strategies to locate, evaluate, and apply information, and know the ethical issues surrounding information and technology.

CLO 3 – Critical Thinking and Quantitative Reasoning: The ability to analyze data, arguments, assumptions, and problems in order to draw conclusions.

CLO 4 – Workforce Readiness: The ability to exercise the skills, competencies and behaviors necessary to succeed in the workplace or at a transfer institution.

CLO 5 – Citizenship: The ability to apply the knowledge, skills and values individuals utilize to be effective, active citizens.

APPENDIX B:
INITIAL STUDENT ELECTRONIC SURVEY

Did you take this class: Online, face to face (Select one-Radio button)

What is your current major? (Drop down box)

What skills do you feel that you are adequately prepared with by taking this course?
(Check boxes)

- Reading a textbook Writing a paper for a class Taking an examination
 Critical thinking
 Time Management Self-Motivation Interdependence (working together)
 Goal setting (educational goals) Goal setting (career goals)

What do you feel you are not adequately prepared for when considering taking future courses? (Check boxes)

- Reading a textbook Writing a paper for a class Taking an examination
 Critical thinking Time Management Self-Motivation
 Interdependence (working together) Goal setting (educational goals)
 Goal setting (career goals)

On the following 1-10 scale, how do you feel you are prepared for your future classes after taking this course? (1-10 scale)

On the following 1-10 scale when considering your application to a competitive entry program or a STEM program, how adequately prepared do you feel? (1-10 scale)

Comments: (Open ended)

What skills do you feel a successful college student would need in order to be fully prepared to take future courses in a two or four year college? (Open Ended)

APPENDIX C:
FOLLOWUP STUDENT SURVEY

Did you take this class: Online, face to face (Select one-Radio button)

What was your grade in the Becoming a Successful Student Class last semester? (Drop down box)

What is your current major/career focus? (Drop down box)

How many credits did you take this semester (Radio button)

What skills do you feel that you learned in the Becoming a Successful Student class have been a benefit to you this semester? (Check boxes)

- Reading a textbook
- Writing a paper for a class
- Taking an examination
- Critical thinking
- Time Management
- Self-Motivation
- Interdependence (working together)
- Goal setting (educational goals)
- Goal setting (career goals)

What skills do you feel that you struggle with currently? (Check boxes)

- Reading a textbook
- Writing a paper for a class
- Taking an examination
- Critical thinking
- Time Management
- Self-Motivation
- Interdependence (working together)
- Goal setting (educational goals)
- Goal setting (career goals)

Do you feel that the skills from the Becoming a Successful Student class has benefitted you this semester? (Radio button)

Comments: (Open ended)

APPENDIX D:
DIVISION AND PROGRAM DIRECTOR QUESTIONS

Appendix D:

Division and program Director Questions

- 1.) What basic academic skills do you require or expect from college students that enter your program?
 - a. Probe: How do you feel students obtain these skills currently?
 - b. Probe: What specific skills do you feel that students do not have for your program?
- 2.) What can we, as a college, do to better enhance or reinforce the skills that you require?
 - a. Probe: What suggestions do you have that we as a college can do to better prepare students academically?
- 3.) What academic skill sets or mentality have you found to be the most effective for students to be accepted into your program or successful in transferring to a four year STEM school?
- 4.) What skill sets have previous students possessed that you have found to be most effective for students who have successfully completed your program?
 - a. Are these skills that the students have possessed previously or skills that your program has taught them?
- 5.) Do you have anything else that you wish to add regarding student success/preparedness on our college campus?

APPENDIX E:

OPEN ENDED SURVEY RESPONSES TO INITIAL STUDENT SURVEY

Open ended survey responses to Initial Student Survey:

Other Items or Topics to be included to assist Future Students (n=24).

Student count	Response
17	No
1	I believe this class covered everything a student needs to know to be prepared for future classes.
1	I believe this course should help us learn more about our major and what is needed for it.
1	I couldn't think of other topics that I feel should be included in this course.
1	I feel as if everything was covered that I need to know!
1	I think it was all covered very well.
1	I think there should have been more about test taking and what strategies to go about certain things, cause in my lab class I have never been exposed to anything like that, so maybe preparing student more for that would have been very helpful for me anyways.
1	I would say no other topics, as most of the topics are either covered in high school, or by living life. Life lessons teach a more memorable lesson than a class that will most likely feel like just another requirement that seemed completely useless, especially when students who graduated from this very building had no trouble at all without the class. No former students I have talked to that attended this school before this class believe it is anything other than a grab for money. I quote one "If they truly need that class, they'd know, but most already know this, or are taught by the world they live in. So with it being a requirement, I definitely think it's a money grab." I couldn't have agreed more with them.

APPENDIX F:

STUDENT FALL 2016 CREDITS ATTEMPTED AND CREDITS
EARNED/ACADEMIC STANDING BY CAREER FOCUS/MAJOR

Identifier	Career focus/Major	Academic Standing EOT	F16 Hrs Attempted	F16 Hrs Passed	F16 GPA
24	Computer Assistant	Good Standing	11	11	3.34
71	Computer Programming	Academic Probation	15	4	0.53
126	Computer Programming	Good Standing	14	10	2.79
149	Computer Programming	Academic Probation	12	1	0.16
1	General Education-Transfer	Good Standing	14	14	3.93
5	General Education-Transfer	Good Standing	13	13	3.53
9	General Education-Transfer	Good Standing	8	8	4
11	General Education-Transfer	Good Standing	14	14	3.42
13	General Education-Transfer	Good Standing	18	18	3.71
17	General Education-Transfer	Academic Probation	13	0	0
18	General Education-Transfer	Good Standing	13	13	2.91
22	General Education-Transfer	Suspended	7	4	1.27
23	General Education-Transfer	Suspended	10	4	0.4
25	General Education-Transfer	Good Standing	14	11	3.63
26	General Education-Transfer	Good Standing	8	5	3.8
28	General Education-Transfer	Good Standing	13	10	2.38
30	General Education-Transfer	Good Standing	7	7	4
31	General Education-Transfer	Good Standing	18	15	2.14
33	General Education-Transfer	Good Standing	18	14	2.22
37	General Education-Transfer	Academic Probation	11	0	0
38	General Education-Transfer	Good Standing	13	7	1.69
39	General Education-Transfer	Good Standing	4	4	4
40	General Education-Transfer	Good Standing	14	14	2.57
43	General Education-Transfer	Academic Probation	14	9	1.28
44	General Education-Transfer	Academic Probation	13	1	0.17
45	General Education-Transfer	Academic Probation	7	1	1
46	General Education-Transfer	Good Standing	13	13	3.46
49	General Education-Transfer	Good Standing	17	10	2.12
50	General Education-Transfer	Good Standing	10	10	3.16
51	General Education-Transfer	Good Standing	15	15	3.73

Identifier	Career focus/Major	Academic Standing EOT	F16 Hrs Attempted	F16 Hrs Passed	F16 GPA
52	General Education-Transfer	Academic Probation	14	11	1.77
53	General Education-Transfer	Good Standing	7	1	4
55	General Education-Transfer	Academic Probation	18	18	1.9
59	General Education-Transfer	Good Standing	14	14	4
60	General Education-Transfer	Good Standing	4	4	2.47
63	General Education-Transfer	Good Standing	12	12	3.59
64	General Education-Transfer	Suspended	10	1	0.4
65	General Education-Transfer	Good Standing	1	1	4
66	General Education-Transfer	Academic Probation	13	1	0.28
68	General Education-Transfer	Good Standing	14	14	3.85
69	General Education-Transfer	Good Standing	10	10	2.49
77	General Education-Transfer	Good Standing	13	7	1.62
78	General Education-Transfer	Good Standing	14	14	3.01
79	General Education-Transfer	Good Standing	14	14	3.35
80	General Education-Transfer	Good Standing	14	14	2.35
83	General Education-Transfer	Good Standing	10	10	2.8
85	General Education-Transfer	Academic Probation	7	1	0.42
86	General Education-Transfer	Good Standing	17	17	3
88	General Education-Transfer	Good Standing	10	10	3.93
90	General Education-Transfer	Academic Probation	15	12	1.66
91	General Education-Transfer	Academic Probation	14	0	0
92	General Education-Transfer	Good Standing	17	17	3.17
94	General Education-Transfer	Academic Probation	14	14	1.29
95	General Education-Transfer	Academic Probation	13	10	1.77
96	General Education-Transfer	Academic Probation	16	4	0.19
99	General Education-Transfer	Good Standing	18	18	2.45
101	General Education-Transfer	Academic Probation	4	0	0
102	General Education-Transfer	Good Standing	15	11	2.72

Identifier	Career focus/Major	Academic Standing EOT	F16 Hrs Attempted	F16 Hrs Passed	F16 GPA
103	General Education-Transfer	Academic Probation	7	1	1
104	General Education-Transfer	Good Standing	14	14	3.86
106	General Education-Transfer	Good Standing	10	10	3.3
107	General Education-Transfer	Academic Probation	14	0	0
108	General Education-Transfer	Good Standing	14	14	2.15
109	General Education-Transfer	Good Standing	13	13	2.67
110	General Education-Transfer	Academic Probation	15	11	1.63
111	General Education-Transfer	Good Standing	11	11	3.44
112	General Education-Transfer	Good Standing	13	13	3.14
114	General Education-Transfer	Academic Probation	10	0	0
115	General Education-Transfer	Good Standing	14	14	3
118	General Education-Transfer	Good Standing	8	8	2.75
122	General Education-Transfer	Academic Probation	8	4	1.13
123	General Education-Transfer	Academic Probation	7	0	0
128	General Education-Transfer	Good Standing	14	14	2.93
130	General Education-Transfer	Academic Probation	11	0	0
137	General Education-Transfer	Good Standing	18	18	3.21
139	General Education-Transfer	Good Standing	7	7	4
141	General Education-Transfer	Good Standing	14	4	3
144	General Education-Transfer	Good Standing	14	14	3.7
145	General Education-Transfer	Good Standing	18	18	3.78
146	General Education-Transfer	Good Standing	8	8	2.62
147	General Education-Transfer	Academic Probation	10	6	1.28
148	General Education-Transfer	Academic Probation	14	4	0.85
150	General Education-Transfer	Academic Probation	12	5	1.11
154	General Education-Transfer	Good Standing	13	9	3.11
155	General Education-Transfer	Academic Probation	8	1	0.25

Identifier	Career focus/Major	Academic Standing EOT	F16 Hrs Attempted	F16 Hrs Passed	F16 GPA
156	General Education-Transfer	Academic Probation	18	11	1.73
160	General Education-Transfer	Academic Probation	8	1	0.5
161	General Education-Transfer	Academic Probation	12	8	0.84
162	General Education-Transfer	Good Standing	13	13	3.37
163	General Education-Transfer	Good Standing	12	12	2.41
164	General Education-Transfer	Academic Probation	10	0	0
165	General Education-Transfer	Good Standing	10	10	4
168	General Education-Transfer	Good Standing	8	8	4
170	General Education-Transfer	Good Standing	14	14	3.78
172	General Education-Transfer	Academic Probation	13	4	1.06
93	Graphic design	Academic Probation	13	0	0
3	Health information Coding Specialist	Good Standing	8	8	3.88
20	Health information Coding Specialist	Good Standing	12	12	4
58	Health information Coding Specialist	Good Standing	8	8	4
124	Health information Coding Specialist	Good Standing	11	8	3.65
135	Health information Coding Specialist	Good Standing	15	15	4
6	Health Information Technology	Good Standing	5	2	3
56	Network Support	Academic Probation	10	7	1.6
14	Pre-Dental Hygiene	Good Standing	11	11	3.45
47	Pre-Dental Hygiene	Academic Probation	13	1	0.23
61	Pre-Dental Hygiene	Good Standing	15	15	3.59
67	Pre-Dental Hygiene	Good Standing	12	12	3
75	Pre-Dental Hygiene	Suspended	5	1	0.8
81	Pre-Dental Hygiene	Good Standing	12	12	3.9
84	Pre-Dental Hygiene	Good Standing	17	17	3.71
113	Pre-Dental Hygiene	Good Standing	14	14	3.93

Identifier	Career focus/Major	Academic Standing EOT	F16 Hrs Attempted	F16 Hrs Passed	F16 GPA
129	Pre-Dental Hygiene	Good Standing	14	14	4
132	Pre-Dental Hygiene	Good Standing	13	13	3.69
133	Pre-Dental Hygiene	Good Standing	8	8	3.5
142	Pre-Dental Hygiene	Academic Probation	12	0	0
143	Pre-Dental Hygiene	Academic Probation	14	8	1.26
4	Pre-Medical Assistant	Good Standing	14	14	2.57
16	Pre-Medical Assistant	Academic Probation	12	7	1.25
21	Pre-Medical Assistant	Good Standing	8	5	2
62	Pre-Medical Assistant	Academic Probation	12	5	0.91
74	Pre-Medical Assistant	Suspended	13	0	0
121	Pre-Medical Assistant	Academic Probation	9	9	1.77
131	Pre-Medical Assistant	Academic Probation	13	4	0.46
166	Pre-Medical Assistant	Good Standing	17	13	3.08
2	Pre-Nursing	Good Standing	4	4	4
12	Pre-Nursing	Suspended	12	0	0
19	Pre-Nursing	Academic Probation	7	0	0
27	Pre-Nursing	Academic Probation	12	4	1
32	Pre-Nursing	Good Standing	12	12	3.59
34	Pre-Nursing	Good Standing	11	11	3.63
35	Pre-Nursing	Suspended	14	8	1.5
36	Pre-Nursing	Suspended	12	1	0.25
42	Pre-Nursing	Suspended	7	1	0.28
48	Pre-Nursing	Good Standing	12	12	3.25
57	Pre-Nursing	Good Standing	12	7	1.37
70	Pre-Nursing	Good Standing	14	14	3.71
76	Pre-Nursing	Good Standing	15	15	3.73
87	Pre-Nursing	Good Standing	14	13	2.28
89	Pre-Nursing	Good Standing	12	12	3.27
97	Pre-Nursing	Academic Probation	14	1	0.23
98	Pre-Nursing	Good Standing	12	8	3

Identifier	Career focus/Major	Academic Standing EOT	F16 Hrs Attempted	F16 Hrs Passed	F16 GPA
105	Pre-Nursing	Good Standing	15	15	3.73
119	Pre-Nursing	Good Standing	14	14	3.58
127	Pre-Nursing	Good Standing	8	8	3.5
134	Pre-Nursing	Good Standing	8	8	3.38
136	Pre-Nursing	Academic Probation	11	1	0.27
140	Pre-Nursing	Good Standing	14	14	2.29
157	Pre-Nursing	Good Standing	8	8	4
158	Pre-Nursing	Academic Probation	14	8	1.72
159	Pre-Nursing	Good Standing	8	8	3
167	Pre-Nursing	Good Standing	12	12	3.75
171	Pre-Nursing	Academic Probation	8	0	0
173	Pre-Nursing	Good Standing	8	5	2.16
174	Pre-Nursing	Academic Probation	8	0	0
15	Pre-Paramedic	Good Standing	14	14	3.91
41	Pre-Paramedic	Academic Probation	12	7	1.75
117	Pre-Paramedic	Academic Probation	13	9	1.75
169	Pre-Paramedic	Good Standing	12	12	3.64
8	Pre-Physical Therapy Assistant	Good Standing	11	11	3.44
29	Pre-Physical Therapy Assistant	Good Standing	8	5	2
54	Pre-Physical Therapy Assistant	Good Standing	14	14	3.58
72	Pre-Physical Therapy Assistant	Good Standing	11	11	2.72
125	Pre-Physical Therapy Assistant	Good Standing	14	14	3.57
152	Pre-Physical Therapy Assistant	Good Standing	8	1	4
153	Pre-Physical Therapy Assistant	Good Standing	8	8	3.01
10	Pre-Respiratory Care	Academic Probation	11	7	1.83

Identifier	Career focus/Major	Academic Standing EOT	F16 Hrs Attempted	F16 Hrs Passed	F16 GPA
82	Pre-Respiratory Care	Academic Probation	12	5	1.85
116	Pre-Respiratory Care	Good Standing	7	7	3.87
138	Pre-Respiratory Care	Academic Probation	14	11	1.19
151	Pre-Respiratory Care	Good Standing	11	11	3.63
7	Pre-Surgical Technology	Good Standing	12	9	3.28
73	Pre-Surgical Technology	Suspended	12	3	0.5
100	Pre-Surgical Technology	Academic Probation	8	5	1.94
120	Web Design	Good Standing	14	14	3.37

APPENDIX G:

SPRING MID-TERM GPA SORTED BY BECOMING A SUCCESSFUL STUDENT

GRADE ACHIEVED IN FALL 2016

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
1	General Education-Transfer	A	3.93	4.00	14.00	8.00
2	Pre-Nursing	A	4.00	4.00	4.00	3.00
3	Health information Coding Specialist	A	3.88	4.00	8.00	7.00
4	Pre-Medical Assistant	A	2.57	2.18	14.00	11.00
5	General Education-Transfer	A	3.53	3.70	13.00	13.00
7	Pre-Surgical Technology	A	3.28	2.97	12.00	10.00
8	Pre-Physical Therapy Assistant	A	3.44	3.51	11.00	14.00
10	Pre-Respiratory Care	A	1.83	3.00	11.00	7.00
11	General Education-Transfer	A	3.42	0.00	14.00	13.00
13	General Education-Transfer	A	3.71	2.78	18.00	13.00
14	Pre-Dental Hygiene	A	3.45	2.79	11.00	13.00
15	Pre-Paramedic	A	3.91	4.00	14.00	13.00
18	General Education-Transfer	A	2.91	3.47	13.00	10.00
20	Health information Coding Specialist	A	4.00	4.00	12.00	10.00
21	Pre-Medical Assistant	A	2.00	0.43	8.00	7.00
24	Computer Assistant	A	3.34	3.15	7.00	13.00
25	General Education-Transfer	A	3.63	0.00	14.00	13.00
28	General Education-Transfer	A	2.38	2.43	13.00	13.00
31	General Education-Transfer	A	2.14	1.36	18.00	17.00
32	Pre-Nursing	A	3.59	3.39	12.00	14.00
34	Pre-Nursing	A	3.63	3.50	11.00	10.00
38	General Education-Transfer	A	1.69	2.31	13.00	16.00
39	General Education-Transfer	A	4.00	3.57	4.00	10.00
46	General Education-Transfer	A	3.46	4.00	13.00	16.00
48	Pre-Nursing	A	3.25	3.43	12.00	7.00
51	General Education-Transfer	A	3.73	4.00	15.00	19.00
54	Pre-Physical Therapy Assistant	A	3.58	3.50	14.00	14.00
56	Network Support	A	1.60	1.71	10.00	13.00
58	Health information Coding Specialist	A	4.00	4.00	8.00	9.00
59	General Education-Transfer	A	4.00	4.00	14.00	13.00

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
61	Pre-Dental Hygiene	A	3.59	4.00	15.00	7.00
67	Pre-Dental Hygiene	A	3.00	3.16	12.00	14.00
68	General Education-Transfer	A	3.85	4.00	14.00	10.00
70	Pre-Nursing	A	3.71	2.80	14.00	10.00
72	Pre-Physical Therapy Assistant	A	2.72	1.88	11.00	13.00
76	Pre-Nursing	A	3.73	2.99	15.00	13.00
77	General Education-Transfer	A	1.62	0.00	13.00	13.00
79	General Education-Transfer	A	3.35	1.20	14.00	13.00
80	General Education-Transfer	A	2.35	3.43	14.00	14.00
82	Pre-Respiratory Care	A	1.85	4.00	12.00	13.00
83	General Education-Transfer	A	2.80	1.33	10.00	9.00
84	Pre-Dental Hygiene	A	3.71	3.27	17.00	14.00
105	Pre-Nursing	A	3.73	4.00	15.00	14.00
111	General Education-Transfer	A	3.44	3.51	11.00	13.00
112	General Education-Transfer	A	3.14	2.81	13.00	19.00
113	Pre-Dental Hygiene	A	3.93	3.27	14.00	14.00
115	General Education-Transfer	A	3.00	2.91	14.00	11.00
116	Pre-Respiratory Care	A	3.87	3.33	7.00	6.00
117	Pre-Paramedic	A	1.75	1.93	13.00	13.00
118	General Education-Transfer	A	2.75	0.00	8.00	11.00
122	General Education-Transfer	A	1.13	1.00	8.00	10.00
124	Health information Coding Specialist	A	3.65	3.61	11.00	13.00
125	Pre-Physical Therapy Assistant	A	3.57	3.00	14.00	8.00
126	Computer Programming	A	2.79	2.93	14.00	13.00
127	Pre-Nursing	A	3.50	3.00	8.00	8.00
129	Pre-Dental Hygiene	A	4.00	3.65	14.00	8.00
132	Pre-Dental Hygiene	A	3.69	3.71	13.00	17.00
133	Pre-Dental Hygiene	A	3.50	3.00	8.00	12.00
134	Pre-Nursing	A	3.38	2.00	8.00	4.00
135	Health information Coding Specialist	A	4.00	3.00	15.00	15.00
137	General Education-Transfer	A	3.21	1.22	18.00	21.00
139	General Education-Transfer	A	4.00	3.43	7.00	13.00

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
140	Pre-Nursing	A	2.29	0.64	14.00	11.00
144	General Education-Transfer	A	3.70	4.00	14.00	12.00
145	General Education-Transfer	A	3.78	2.64	18.00	21.00
151	Pre-Respiratory Care	A	3.63	3.00	11.00	10.00
153	Pre-Physical Therapy Assistant	A	3.01	0.60	8.00	10.00
154	General Education-Transfer	A	3.11	3.15	13.00	13.00
157	Pre-Nursing	A	4.00	3.80	8.00	12.00
158	Pre-Nursing	A	1.72	1.09	14.00	14.00
159	Pre-Nursing	A	3.00	2.57	8.00	7.00
161	General Education-Transfer	A	0.84	2.00	12.00	8.00
162	General Education-Transfer	A	3.37	2.50	13.00	12.00
165	General Education-Transfer	A	4.00	3.57	10.00	9.00
166	Pre-Medical Assistant	A	3.08	3.65	17.00	6.00
167	Pre-Nursing	A	3.75	3.58	12.00	10.00
168	General Education-Transfer	A	4.00	2.51	8.00	14.00
169	Pre-Paramedic	A	3.64	3.14	12.00	17.00
173	Pre-Nursing	A	2.16	0.50	8.00	6.00
	Average		3.21	2.78	12.01	11.73

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
16	Pre-Medical Assistant	B	1.25	2.70	12.00	3.00
26	General Education-Transfer	B	3.80	1.71	8.00	11.00
47	Pre-Dental Hygiene	B	0.23	0.00	13.00	6.00
55	General Education-Transfer	B	1.90	2.40	18.00	17.00
60	General Education-Transfer	B	2.47	1.00	4.00	6.00
62	Pre-Medical Assistant	B	0.91	0.00	12.00	13.00
89	Pre-Nursing	B	3.27	1.84	12.00	14.00
92	General Education-Transfer	B	3.17	2.69	17.00	20.00

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
95	General Education-Transfer	B	1.77	2.50	13.00	12.00
98	Pre-Nursing	B	3.00	0.73	12.00	14.00
99	General Education-Transfer	B	2.45	0.00	18.00	15.00
102	General Education-Transfer	B	2.72	3.00	15.00	12.00
104	General Education-Transfer	B	3.86	3.00	14.00	13.00
106	General Education-Transfer	B	3.30	4.00	10.00	7.00
109	General Education-Transfer	B	2.67	0.22	13.00	18.00
141	General Education-Transfer	B	3.00	4.00	14.00	13.00
148	General Education-Transfer	B	0.85	0.93	14.00	12.00
88	General Education-Transfer	B+	3.93	4.00	10.00	13.00
119	Pre-Nursing	B+	3.58	3.15	14.00	16.00
120	Web Design	B+	3.37	2.60	14.00	16.00
Average			2.58	2.02	12.85	12.55

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
6	Health Information Technology	C	3.00	3.46	5.00	7.00
27	Pre-Nursing	C	1.00	1.87	12.00	12.00
66	General Education-Transfer	C	0.28	1.15	13.00	12.00

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
110	General Education-Transfer	C	1.63	0.00	15.00	10.00
128	General Education-Transfer	C	2.93	2.00	14.00	13.00
150	General Education-Transfer	C	1.11	0.00	12.00	13.00
100	Pre-Surgical Technology	C-	1.94	1.00	8.00	10.00
78	General Education-Transfer	C+	3.01	4.00	14.00	10.00
Average			1.86	1.69	11.63	10.88

Identifier	Major/Career focus	Course grade	F 16 GPA End of Term	Sp17 GPA Mid-Term	Fall 16 credits attempted	SP 17 credits attempted
69	General Education-Transfer	D	2.49	1.42	10.00	10.00
108	General Education-Transfer	D	2.15	2.91	14.00	14.00
37	General Education-Transfer	F	0.00	1.25	11.00	8.00
43	General Education-Transfer	F	1.28	0.00	14.00	17.00
57	Pre-Nursing	F	1.37	1.96	12.00	8.00
87	Pre-Nursing	F	2.28	3.03	14.00	12.00
91	General Education-Transfer	F	0.00	0.00	14.00	11.00
107	General Education-Transfer	F	0.00	0.00	14.00	6.00
114	General Education-Transfer	F	0.00	0.00	10.00	9.00
130	General Education-Transfer	F	0.00	0.00	11.00	3.00
138	Pre-Respiratory Care	F	1.19	0.00	14.00	13.00
Average			0.98	0.96	12.55	10.09

APPENDIX H
MSSE EXEMPTION CERTIFICATE

APPENDIX G:



INSTITUTIONAL REVIEW BOARD
For the Protection of Human Subjects ·
FWA 00000165

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Chair: Mark Quinn
 406-994-4707
 mquinn@montana.edu
Administrator:
 Cheryl Johnson
 406-994-4706
 cherylj@montana.edu

MEMORANDUM

TO: Michael Shell and Walter Woolbaugh
FROM: Mark Quinn *Mark Quinn CQ*
DATE: September 30, 2016
RE: "Finding Success in Teaching Student Success" [MS093016-EX]

The above research, described in your submission of **September 30, 2016**, is exempt from the requirement of review by the Institutional Review Board in accordance with the Code of Federal regulations, Part 46, section 101. The specific paragraph which applies to your research is:

- (b) (1) Research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- (b) (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.
- (b) (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- (b) (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available, or if the information is recorded by the investigator in such a manner that the subjects cannot be identified, directly or through identifiers linked to the subjects.
- (b) (5) Research and demonstration projects, which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.
- (b) (6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed, or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the FDA, or approved by the EPA, or the Food Safety and Inspection Service of the USDA.

Although review by the Institutional Review Board is not required for the above research, the Committee will be glad to review it. If you wish a review and committee approval, please submit 3 copies of the usual application form and it will be processed by expedited review.