# The History of the Malone Mathematics Program, 1957-2018 Abigail Woodward

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from the Malone Honors Program

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Malone History Overview: Transition from Bible College to Liberal Arts

It was in 1957 that the Cleveland Bible College made its historical move to Canton and became Malone College, a liberal arts institution. This was the first college in Canton, filling a need and wish of the city and providing many local students the opportunity to attend a college. Even though Malone transitioned into a liberal arts school, shifting its focus to the arts and sciences from its past role as mainly a Bible training school, Malone College kept its core values and Christian atmosphere to become a place of higher learning that reached a student's full self, academically and spiritually.

The Cleveland Bible College was one of very few Friends higher education schools, which means it gained enrollment quickly; in-state as well as many out-of-state young adult Friends attended with the desire to become paid pastors or other Christian workers. Because Friends did not have paid pastors, there were limited places for Friends to receive a Christ-centered education geared towards pastor preparation and other Christian work.<sup>2</sup> The transition to liberal arts in 1957 was unique in that the school was still a Friends institution and still offered Bible and pastoral ministries majors but could now reach a broader audience with many "secular" majors. The Christ-centeredness of the school's previous educational purposes still guided the college's decisions, but now it was open to non-Christian as well as Christian students.

<sup>1</sup> Stuckey, Jacalynn. *Malone University: A Commemorative History. 1892-2017*. Chapter 4: The "Christian Liberal Arts College (1956-2008)," pg 28.

<sup>&</sup>lt;sup>2</sup> Stuckey, Jacalynn. "Chapter 1: The Training School," p 8.

Cleveland Bible College did previously offer liberal arts courses and even boasted of a junior college program beginning in 1947,<sup>3</sup> but with this transition to fully being a liberal arts school came the pursuit of accreditation. The move to Canton and transition to liberal arts was in the hopes of growing the reach of the institution and attracting more students, while still keeping to the Christ-centered values on which the institution was founded. Full accreditation would help accomplish just that, and it was in 1964 that Malone completed the process and was given full accreditation by the North Central Association of Colleges and Secondary Schools (NCA).<sup>4</sup> Enrollment rose by roughly 28% that year,<sup>5</sup> proving how swiftly Malone's academic standing rose upon becoming fully accredited.

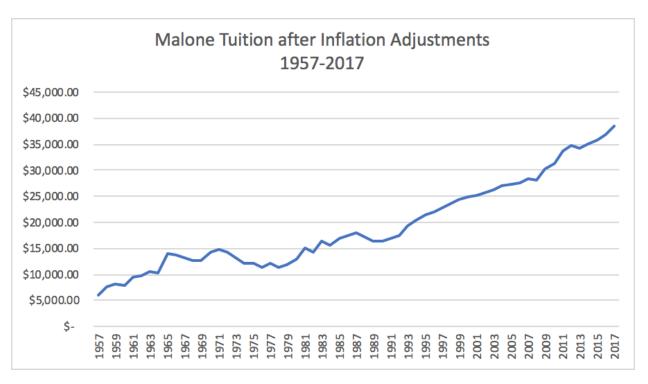
The mid-1960s also had jumps in cost of tuition. The tuition from 1960-1970, after adjusting for inflation, rose by over 75%. Since this was the time of the accreditation of Malone as a liberal arts institute, the college's increase in both price and enrollment can be linked to the fact that Malone College was the only college in Canton and the surrounding area at the time, so it attracted both Christian and non-Christian students. Tuition increased in order to pay for the additional majors, staff, and housing needs.

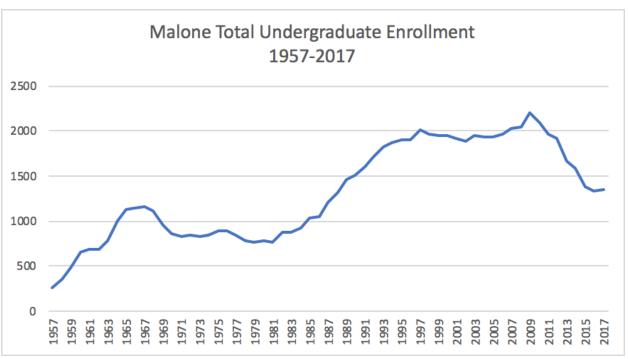
<sup>&</sup>lt;sup>3</sup> Stuckey, p 31.

<sup>&</sup>lt;sup>4</sup> Stuckey, p 31.

<sup>&</sup>lt;sup>5</sup> Malone Total Undergraduate Enrollment graph, data from Malone Catalogs and Malone College Statistical Analysis of the Student Body.

<sup>&</sup>lt;sup>6</sup> Malone Tuition after Inflation Adjustments graph, data from Malone Catalogs and CPI Inflation Calculator.





#### Local Influences on Malone's Enrollment

Kent State University in Stark campus was built in 1966 and the first group of students entered in 1967. This campus affected Malone's enrollment in the following years dramatically. This public institution began by offering only freshman- and sophomore-level courses, but as enrollment grew, the university began offering a selection of four-year programs as well as graduate programs. As previously mentioned, the Canton residents wanted a local university. Even with Malone already well-established in the area, the option for a second institution of higher education would not be passed up. State and federal legislation of the early 1960s were beneficial in that they helped with the raising of funds for a college campus, and so the building of Kent State Stark began rather quickly after community fundraising proved successful.

Kent State Stark's website boasts that the enrollment grew from its beginning through the 1980s. During this same time, Malone's enrollment dropped by roughly 33% from Kent State's first year in Canton to the year 1980. The draw to a public and affordable institution provided an unforeseen struggle for Malone and led to its drop in enrollment. Kent State Stark had a focus in the arts and sciences, as it was a public university. Unlike Malone, Kent did not have the Christian foundation or chapel requirements, thus drawing in many local, secular students.

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<sup>&</sup>lt;sup>7</sup> Kent State University: Stark, History, 2018. Web, https://www.kent.edu/stark/campus-history

<sup>&</sup>lt;sup>8</sup> Kent State Stark website, history.

<sup>&</sup>lt;sup>9</sup> Data from Malone College Statistical Analysis of Student Body Characteristics.

Some of the main reasons a student chooses a university are: affordability, location, and the excellence of the program. <sup>10</sup> The tuition at Malone is over 5 times that of Kent, <sup>11</sup> so for this aspect, Kent seems much more desirable. But the affordability of Malone cannot directly be compared with Kent, as an education at Malone is more well-rounded and holistic than simply receiving a degree at Kent State Stark. As all freshmen learned in GEN100, there is a difference between a vocation and a calling, and Malone focuses on more than their students' future careers. Location is similar between Kent Stark and Malone, so that reason does not favor one over the other. (Google Maps places the two schools at 4.8 miles apart, a distance traveled in only 9 minutes if one were to take I-77.) The excellence of the program is the next aspect to consider when discussing why Kent Stark's math enrollment is so much larger than Malone's, and the education offered at the former is at first glance more attractive and superior. Malone's math program is small and rather obscure to the public eye, whereas the advertisement and public reach of Kent State Stark in the fields of Math and Sciences have made it more well-known and respected.

Kent Stark is a larger institution, and thus has the capability to offer many more courses. The tracks of the program a student can take, based on his/her specific interests and future career aspirations, include: Applied Mathematics B.S., Mathematics B.A. or B.S., Pure Mathematics B.A. or B.S., and Math Education. And within these degree options, there are numerous electives from which to choose from. There is a total of 76 listed

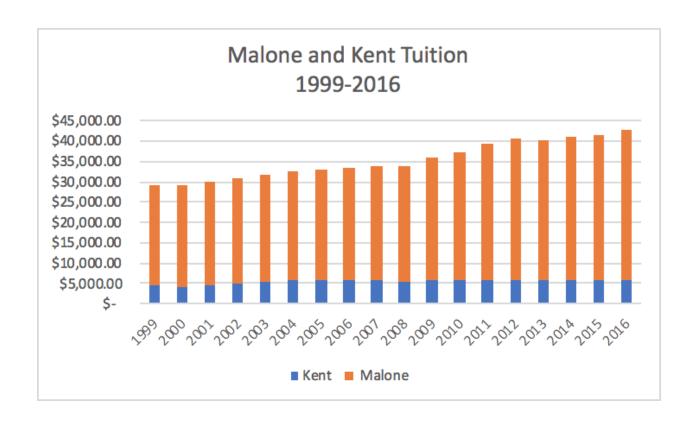
<sup>&</sup>lt;sup>10</sup>eLearners. "What is Important When Choosing a College?" 2018. Web. https://www.elearners.com/education-resources/online-learning/top-10-reasons-why-students-choose-colleg

<sup>&</sup>lt;sup>11</sup>Data from IPEDS. https://nces.ed.gov/ipeds/datacenter/Data.aspx Data seen on Malone and Kent Tuition graph.

undergraduate Mathematics courses as Kent Stark. <sup>12</sup> Malone offers 22. Based on number and variety of courses to meet the diverse educational needs of their students, Kent Stark is more capable in this area. Malone's size and lack of students and faculty make it impractical to provide that extent of courses, as will be further discussed later in this paper.

The focus on the math and sciences today at Kent State University at Stark, specifically nursing, biology, physics, and chemistry, has made this university a continual competitor to Malone's enrollment. The most common major in the Math and Science Department at Malone currently is Zoo and Wildlife Biology, a program which is exceptional at Malone compared to other local universities, including Kent. It is this program that has been one of Malone's top enrollment majors and has greatly impacted the overall STEM enrollment.

<sup>&</sup>lt;sup>12</sup> Kent State University: Stark. Course Catalog, 2017-2018. http://catalog.kent.edu/coursesaz/math/



Ohio Governor James Rhodes did much in the 1960s and 1970s to increase opportunities in higher education. The Ohio Board of Regents, a board for advising the governor and state legislature on issues of higher education, was founded in 1963, the same year as Governor Rhodes' first year in office. His push for higher education impacted the enrollment at Malone, especially during his second time in office in the 1980s. His influence was also a contributing factor to Stark County's enthusiasm toward building the campus for Kent State University in Stark as well as Stark State campus. Stark State College, previously called Stark State Technical Institute, is mostly a two-year community college, but does offer some four-year degrees. This school, like Kent State Stark, did contribute to Malone's decrease in enrollment in the 1960s and 1970s.

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<sup>&</sup>lt;sup>13</sup> Department of Higher Education. "The Board of Regents." Ohio Higher Ed. 2018. https://www.ohiohighered.org/board

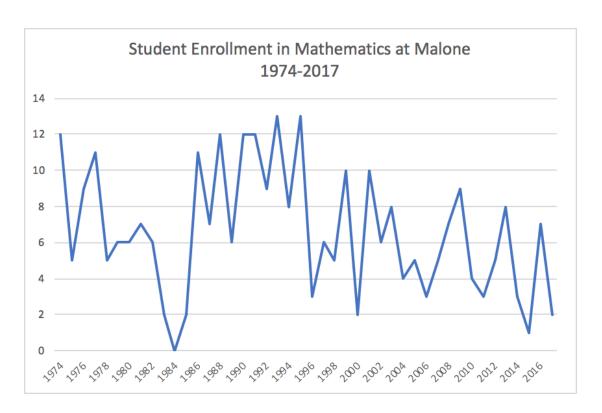
Governor Rhodes greatly supported two-year colleges, and Stark State has grown to become the largest of Stark County's colleges.<sup>14</sup>

Unfortunately, for this research project I was unable to compare Malone math enrollment to that at Kent State University at Stark or Stark State College because neither school specified enrollment by major in their public records. If given access to this data, comparisons among Stark County's colleges within the math department, graphing for patterns and projection of future enrollment, would be a beneficial addition to this study.

The national trends for higher education showed an increase in enrollment in the 1980s and 1990s, and Malone followed that trend. The growth during that time was constant for overall undergraduate enrollment, although the Math major enrollment did not follow this pattern. There was no pattern to the Math major enrollment, and it fluctuated every year, as the graph below shows. The graph displays the number of incoming freshmen who were listed as math majors each year. The lack of pattern and consistency in the math department's enrollment is due to the small numbers. When there is a small data set to evaluate, any change, either an increase or decrease in enrollment from one year to the next, is significant because there are so few numbers to compensate for the change. The standard deviation for yearly enrollment in math is high in comparison to the department's limited enrollment. This means that the data is too spread out to be reliable for projection of future numbers in the department.

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<sup>&</sup>lt;sup>14</sup> Ohio History Connection. Stark State College of Technology. http://www.ohiohistorycentral.org/w/Stark\_State\_College\_of\_Technology



mean:	6.59090909
standard deviation:	3.49962245

## Malone History Continued: from College to University

2008 was another major year in Malone history, as the institution changed from being "Malone College" to "Malone University." There were no undergraduate or graduate changes during this transition, nothing academic marking the university status; it was simply a name change. This did bolster Malone's credibility to the secular world and increased the number of students who attended. The cost of tuition dropped during this time as the enrollment numbers rose. The tuition drop could be partly linked to the Great Recession but was much more directly linked to the fact that Malone became a "university" and there was a distinct recruitment plan put in place that year. There were tuition drops to encourage students to enroll, and this brought Malone to its highest student headcount in its history. This strategy did bring in more students that year, about 8% more than the past school year, but in the long run it caused higher costs in later years to compensate for the discounts offered. From 2008 to the current school year, tuition has risen by almost 50%. Enrollment also took a downturn following 2008, as the Malone Total Undergraduate Enrollment graph from page 3 demonstrates.

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<sup>&</sup>lt;sup>15</sup> Malone Catalog major requirements and graduate programs did not change. Usually when a college becomes a university, there are guidelines such as headcount numbers and graduate programs a college must meet.

Wellman, Mitchell. "What's the Difference Between a College and a University?" USA Today College, 2017

<sup>&</sup>lt;sup>16</sup> Ruffalo Noel Levitz was the company used for this recruitment strategy. Their website gives many strategic plans for colleges and other institutions. *RNL Strategic Enrollment Planning*. Ruffalo Noel Levitz, 1998-2017.

## Malone's Main Foundation Affects Enrollment Patterns

The purpose of the Cleveland Bible College was to teach future pastors and teachers with a Christ-centered education and give students practical training and opportunities to live out their faith through community service activities and daily chapel. Although Malone is now a liberal arts university with broader opportunities for students, the foundational goals of training Christian workers still impacts the enrollment and atmosphere of the educational experience here. Majors that are more closely linked to service—whether in the teaching of young hearts and minds (teaching), the care of animals (zoo and wildlife biology), or the care of other people (psychology, nursing)— are the main majors at Malone and are more easily geared towards Christian thinking and actions. This does have an effect, I believe, on the limited enrollment in Mathematics. How is math "Christian"? Or, how will I be able to use math to further the Kingdom? These are questions I have been asked on many occasions. I wonder if such thoughts are part of the reason why math is an obscure major at Malone- and as will be seen in a later section, at other Christian colleges as well- whereas more obvious service- and faith-centered majors are the most common.

This is not to say that Mathematics does not fit well into the Christian liberal arts. The methods of reasoning and of evaluating one's own thoughts and beliefs is very much a part of this major. Establishing what is true is a primary focus of this major's study, and there is an acute level of humility involved when pursuing truth. The patterns, theorems, lemmas, and other justified proofs in Mathematics demonstrate principles in nature that God created. Whether one believes math is innate, having been discovered by man, or

whether one believes man invented math, part of studying Mathematics at Malone is recognizing the ways in which it relates to God and truths of science and nature. It was Galileo who said, "Mathematics is the language with which God has written the universe." Mathematics may not be "Christian" in context or material, but, as the Self-Study Report of the Mathematics Program states, "mathematics provides the tools of number and abstraction that have proven useful in understanding many aspects of the created order."

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<sup>&</sup>lt;sup>17</sup> Self-Study Report of the Malone Mathematics Program, p 5.

## Malone Enrollment by Department

When Malone first became a liberal arts institution, it offered 13 majors. The very next year, 22 majors were offered. Malone transitioned swiftly and created a wide range of course opportunities for students. Mathematics was added in 1965, eight years after the move to Canton and just one year after full-accreditation was received. 18 Before this time, a few mathematics courses were offered under the Physics major, which was then renamed the "Mathematics and Physics Major," finally becoming the Mathematics major. The courses offered while under the physics umbrella were remedial, standard education, and also some more advanced math courses: Intermediate Algebra (MATH 101), Fundamentals of Mathematics (MATH 103), College Algebra (MATH 107), Trigonometry (MATH 108), Analytic Geometry (MATH 110), Differential Calculus (MATH 205), and Integral Calculus (MATH 206). 19 Following the formation of the Mathematics major, a broader selection of courses were offered, such as: Engineering Drawing (MATH 111), Astronomy (MATH 201), and Statistics (MATH 240).<sup>20</sup> By 1970, courses called "Computers for the Liberal Arts" (MATH 100) and "Computer Programming" (MATH 263) were added, demonstrating another change in higher education and the professional sphere, as the advances in technology and its uses continued to grow.<sup>21</sup> Computer Science is still partnered with the Mathematics Department today, but when it was first implemented, it was within the Math major, much like the beginning of the Math major was within Physics.

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<sup>&</sup>lt;sup>18</sup> Self-Study Report of the Malone Mathematics Program, p 7.

<sup>&</sup>lt;sup>19</sup> Malone College Catalogs.

<sup>&</sup>lt;sup>20</sup> Malone College Catalog 1960.

Originally, there were plans to build an observatory for the Astronomy course. Blueprints show that it would have been constructed where Brehme Centennial Center now stands.

<sup>&</sup>lt;sup>21</sup> Malone Catalog 1970.

In the most recent academic year, Fall 2017, only 2 incoming freshman were listed as being mathematics majors, meaning less than 1% of total undergraduates were new mathematics majors.<sup>22</sup> The low numbers in this major are not uncommon, and back as far as 1974 when enrollment records were distinguished by major, incoming freshman math majors never went over thirteen students, as the graph on page 8 can attest.

This creates a struggle for the Math department. Limited enrollment affects class sizes, which in some cases means cancelling classes for lack of students. For example, a course I am taking this semester, MATH 422, has not been offered to students since Spring of 2010 due to the lack of students in the major and this course being an elective, not a requirement. In the 2010 Self-Study Report of the Mathematics Program, a concern of the department was in the difficulty of offering multiple elective courses due to the low enrollment. In the SWOT (Strengths, Weaknesses, Opportunities, Threats) section of the report, two of the threats to the department were "fewer majors necessitate cancelling classes" and "low number of majors," Proving the math faculty were concerned then about the lack of growth in the math program. Unfortunately, not much has changed to fix these threats.

The math courses I have taken have had class sizes ranging mainly from 2-6 people, these being courses required for math majors and minors. The courses offered for computer science and integrated mathematics as well as math majors have had a few more students, but still have always been rather small. This has been a strength of the department in the

<sup>&</sup>lt;sup>22</sup> Seen on graph of Student Enrollment in Mathematics at Malone.

<sup>&</sup>lt;sup>23</sup> Self-Study Report of the Malone Mathematics Program, p 47.

<sup>&</sup>lt;sup>24</sup> Self-Study Report of the Malone Mathematics Program, p 45.

sense that small class sizes encourage individualized learning, small student/teacher ratio, and leads to more student/teacher interactions.<sup>25</sup> But, this also means the financial growth and academic standing of the department is not as high as it could be. The number of math faculty has consistently hovered around 2 or 3 full-time professors,<sup>26</sup> which impacts scheduling of classes and number of courses offered each semester. Less students means less opportunity for adding more diverse electives. For students who are planning on continuing their education at graduate school, some courses would be better suited than others in preparation. On the other hand, for students with the plan of entering the workforce, or those going into teaching, different courses may be more useful. With such a small group of students, though, the ability to meet the diverse student needs and future goals may be difficult.

The most prominent department at Malone is the Department of Science and Mathematics, accounting for 21% of the undergraduate enrollment this past academic school year.<sup>27</sup> The high numbers in this department are historically consistent, as well. The transition to liberal arts in 1957 meant a focus on the arts and sciences, but specifically STEM subjects. And yet, as mentioned previously, the Mathematics major is miniscule in numbers compared to other majors in the total undergraduate enrollment. The majority of the enrollment numbers in this department are due to the Sciences, specifically Zoo and Wildlife Biology, Exercise Science, and Biology. Mathematics only

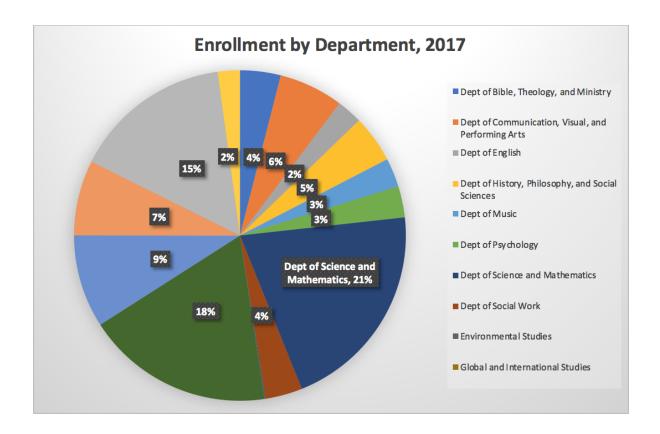
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<sup>&</sup>lt;sup>25</sup> Self-Study Report of the Malone Mathematics Program, p 44.

<sup>&</sup>lt;sup>26</sup> Self-Study Report, pp 7-11.

<sup>&</sup>lt;sup>27</sup> Malone Fact Book 2017, p 20.

takes up 5% of the Department's enrollment numbers,<sup>28</sup> which can be seen on the pie chart on the following page.

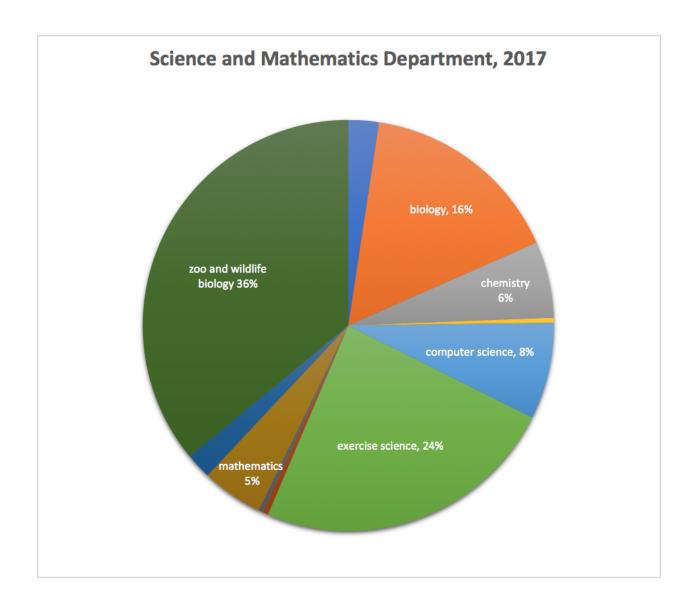


Malone's Zoo and Wildlife Biology program has done a fantastic job of making the local community aware of the high accreditation and strengths of the program. The department even houses its own zoo, providing a productive on-site experience for students in the program, and a cool mini field trip for other students to visit. The Math department would benefit greatly from this perception of high academic status, but alas with the overall lack of interest in math faced by students at Christian universities, as well as the general

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<sup>&</sup>lt;sup>28</sup> Pie chart data from the Malone Fact Book 2017, p 21. Global and International Studies offers no major, only a minor. It was included in the list of enrollment data by department, so I included it in this pie chart.

aversion to math in higher education by many, I do not see this department succeeding as well as the Zoo and Wildlife Biology has.



## Comparison to Other Christian Universities

For part of my research on the development of the Malone Mathematics major, I compared data with other private universities near Stark County. The institutions I gathered data from were: Walsh University (North Canton. OH), Bluffton University (Bluffton, OH), Mount Vernon Nazarene University (Mt. Vernon, OH), and Geneva College (Beaver Falls, PA).

At the time, the transition to liberal arts for Malone was a unique decision, as many other Christian schools remained Bible colleges. But the colleges listed for comparison in this section of the paper are Christian liberal arts colleges, as well. They all began from different denominations, but each one now reaches students beyond their own denomination in the effort to love and educate others regardless of their Christian beliefs.

Walsh College was founded in North Canton in 1960, established by the Brothers of Christian Instruction, with the purpose of "providing education for the poor." The college was a traditional Catholic college until the late 1970s, when in response to the declining enrollment numbers (much like Malone's struggle with enrollment during this time), began to offer partial scholarships to a larger range of students instead of the full scholarships previously given to select Catholic students. Walsh's "blurring" identity caused by the decision to enroll more non-Catholic students caused some concern among some of the Brothers, but today the leaders are intentional about making sure their Catholic roots still direct the school. With the shift to bringing in more diverse students, both Catholic and other Christian denominations, new majors, such as nursing, business,

and counseling were added,<sup>29</sup> marking clearly that Walsh was a Christian liberal arts institution. Walsh College changed its name to Walsh University in 1993<sup>30</sup> and continued to make strides towards a liberal arts education. But, as Joseph Torma clearly expressed throughout his chapter on Walsh's history, the university never lost its Catholic identity.

Bluffton College, now Bluffton University, began as a Mennonite school, enrolling only Mennonite students. Into the mid-twentieth century, a transition to calling themselves "Anabaptist" instead of "Mennonite" was made in order to open enrollment to more than just Mennonite people, but Christians of other denominations, as well. As Perry Bush, an expert on Bluffton's history wrote, "The college became explicitly Anabaptist partly because of pragmatic necessity and partly because of a growing commitment to reach out and include students beyond the confines of traditional Mennonite ethnoreligious peoplehood."<sup>31</sup> As an Anabaptist institution, Bluffton was able to be more open to other denominations without being confined to the strict Mennonite traditions, allowing this college to flourish as other Mennonite schools were losing students and struggling financially.

Mount Vernon is unique in that a "transition" to Christian liberal arts was not necessary; this Nazarene school began by providing an education to all students, regardless of their beliefs or ties to a specific Christian denomination.<sup>32</sup> This school was founded in 1968, so

<sup>&</sup>lt;sup>29</sup> Torma, Joseph. *Walsh University: The Youngest Catholic Cradle of Conscience*. "Cradles of Conscience: Ohio's Independent Colleges and Universities." 2003. p 479.

<sup>&</sup>lt;sup>30</sup> Torma, p 481.

<sup>&</sup>lt;sup>31</sup> Bush, Perry. *Bluffton College: Progressive Anabaptism*. "Cradles of Conscience: Ohio's Independent Colleges and Universities." 2003. p 52.

<sup>&</sup>lt;sup>32</sup>Mayle, Paul D. Mount Vernon Nazarene University: The Miracle on the Kokosing. Cradles of Conscience: Ohio's Independent Colleges and Universities." 2003. p 313.

the idea of Christian liberal arts schools was already becoming more common in Ohio. (Recall: Malone became a liberal arts college in 1957, Bluffton in the mid-1940s, and Walsh in the late-1970s.) Unlike the Mennonite denomination of Bluffton's beginnings that focused solely on furthering the education of Mennonite students, the Church of the Nazarene "emphasized liberal arts" and stated that "Christ's redemptive work [is] all-inclusive and applicable to transforming the whole person."<sup>33</sup>

Geneva College, the only one of these institutions from out-of-state, has had a long history as a school of the Reformed Presbyterian Church of North America. Geneva was originally located in Ohio but moved to Pennsylvania early in its history. Geneva did not have a set time of transition to liberal arts, as it was similar to Mount Vernon Nazarene in its educational views for all people. This school has been functioning since 1848, so it is the oldest of the schools I've researched. Geneva's statement of faith includes their belief that "it is the purpose of Christian education to seek the realization of the potential of the individual as the image of God through the development of God-given capacities," which has been a main influencer in their numerous majors in the sciences, arts, and graduate studies.

Out of all of the above listed universities, Malone on average had the highest undergraduate enrollment. Geneva is second, followed by Mount Vernon Nazarene, Walsh, then Bluffton. My data for these universities is mainly from the IPEDS National Center for Education Statistics as well as some institution's catalogs and fact books. I

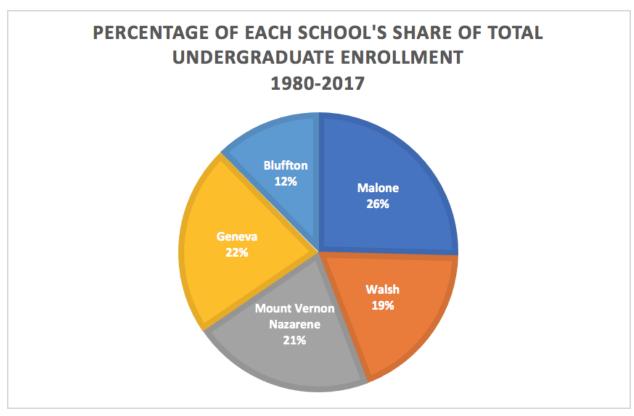
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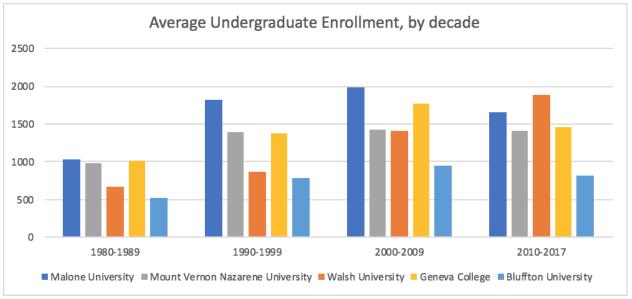
<sup>&</sup>lt;sup>33</sup> Mayle, Paul D, pp 313-14.

<sup>&</sup>lt;sup>34</sup> Foundational Concepts. Geneva College. 2018. Web. http://www.geneva.edu/about-geneva/foundational concepts

was able to gather data from 1980-2017 for all of the institutions for accurate comparisons. The second graph, organized by average enrollment per decade, demonstrates the patterns of each institution. Walsh has been steadily increasing, demonstrating hopeful future projections of continued increase in enrollment. Mount Vernon grew from the 1980s to 1990s, then stayed rather static at about 1,400 students. Bluffton, Geneva, and Malone all followed similar patterns of increase in the 1980s-2000s, followed by a drop in enrollment this past decade. Bluffton dropped by about 14%, Geneva by 17%, and Malone by 16%.

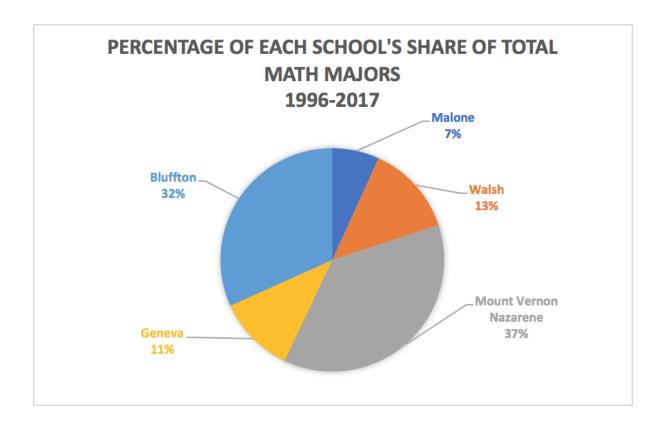
A question for further study would be to investigate further the enrollment methods of Walsh to see what the cause of their steady increase in enrollment has been. All of the other colleges in this comparison could benefit from Walsh's recruitment strategies.





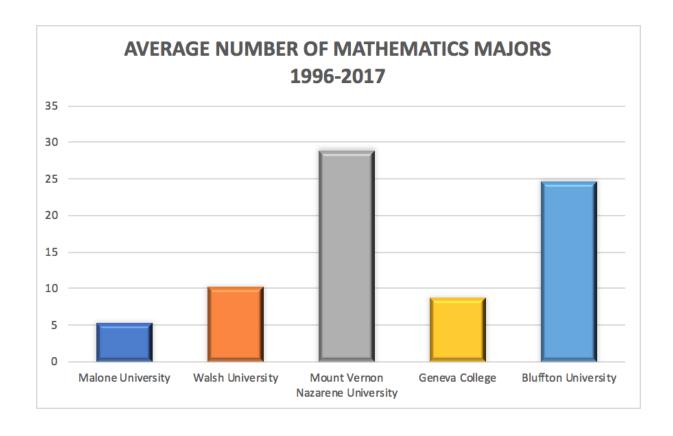
Out of all of the listed universities, Mount Vernon had on average the highest mathematics major undergraduate enrollment. Bluffton was second highest, then Walsh third, Geneva next, and Malone had the least number of students enrolled. The pie graph

below measures the percentage of each college's math majors from the total sum of math majors of the schools combined. As a couple of the universities only distinguished enrollment by major in their available data starting in 1996, my data for comparison spans from 1996-2017. Mount Vernon Nazarene has their incoming freshman math majors still only at about 2% of their total undergraduate enrollment,<sup>35</sup> so that is still not many in context, but compared to Malone's highest yearly math enrollment recorded of 13 students, Mount Vernon Nazarene is consistently in the mid-to-high-20s.



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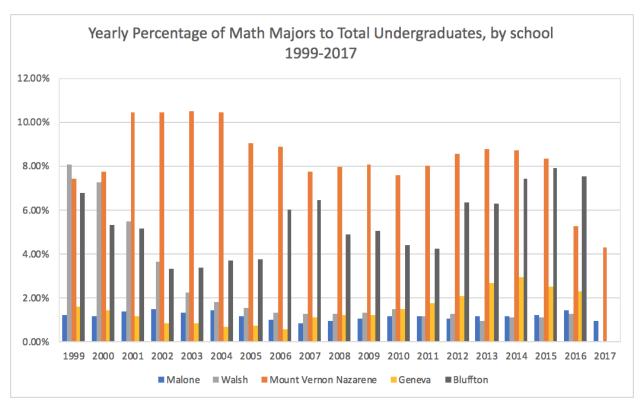
<sup>&</sup>lt;sup>35</sup> Data from IPEDS.



One interesting aspect of my gathered data is the percentage of math majors to total undergraduate students at each college. As expected, Malone has a very small percentage, average of about 1.19%. Mount Vernon Nazarene, with the third highest total enrollment and highest math major enrollment, has an average of 8.34%. The graph below shows that none of the universities had more than about 10% of their undergraduates as math majors in any given year. For the most recent school year of 2017-2018, Walsh, Geneva, and Bluffton had not yet published their data and thus are not recorded for this year.

The university that was surprising was Bluffton University. Bluffton had the smallest enrollment, and yet came in second in math major enrollment. This institution's average math major to total enrollment percentage was about 5.45%. Although all of these

percentages are small in comparison with the entire institution's enrollment, being that Bluffton had a total enrollment that was less than half of Malone's and yet had over 4 times as many math majors on average, this would be a unique school to do further research on. Mount Vernon Nazarene also has unique data, as their math major enrollment actually made it above 10% for a few years and never dropped below 4.32%, demonstrating this university's focus on the STEM majors as successful. As previously discussed, the local factor of competing schools has impacted Malone's small math enrollment, but schools such as Bluffton and Mount Vernon Nazarene do not have that same issue. Those are two more rural schools, and thus have less competition for STEM majors in the area, leading to higher math major enrollment, as seen on the graphs. Investigating their strategies for attracting students to the major, and creating a method of implementing those strategies here at Malone, would be a great topic for future study.



#### Conclusion

Malone began its first year as a liberal arts institution in 1957 and since then has offered multiple majors in the arts and sciences, from 13 majors in the year 1957 to 52 in the 2017-2018 school year. The transition increased enrollment and allowed both Christian and non-Christian students to study at a faith-based institution, receiving both a quality education and spiritual guidance. Mathematics was added in 1965 and although enrollment has been unstable, the program has been a part of the most common department at Malone, the Department of Science and Mathematics, constituting at 21% of enrollment this school year.

The building of Stark State College in 1960 and Kent State University at Stark in 1967 affected Malone's enrollment, as well as that of Walsh University, also a Stark County college. The two public colleges impacted the STEM fields especially, attracting many local students with their low tuition, location, and numerous courses geared for many different future career paths. Also, the lack of math faculty and limited course options affect student enrollment at Malone, an issue recognized by the Self-Study Report of 2010.

When comparing Malone to other Christian liberal arts colleges, it was discovered that although Malone has the highest overall enrollment, the percentage of math majors is lowest, totaling at only 1.19% on average. Walsh's overall enrollment strategies, as well as Bluffton's and Mount Vernon Nazarene's strategies for bringing in specifically math majors, would be interesting to invest further and mimic here at Malone.

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