DAYTONA STATE COLLEGE

Finding the Right Path is Easy!

SCHOOL OF MATHEMATICS

Math Pathway Guide

Use this guide to help you choose the correct math courses for your major.

What is the purpose of the Math Pathway Guide?

The Math Pathway Guide encourages students to enroll in and complete gateway, college-level courses in their first academic year by providing options that are relevant to a student's program of study. Too many of our students are guided into a math pathway that requires MAC1105 College Algebra which is inappropriate for non-STEM students. Conversely, for non-STEM students, the effective math pathway would be courses such as MGF2130 Mathematical Thinking or MGF2107 Liberal Arts Mathematics which satisfy program requirements of the chosen program of study. Undecided students should be guided into a gateway math course associated with a meta-major like business, social sciences or STEM in order to keep them on track.

The research is clear; simply increasing the number and percent of students who complete a college level math course in their first year adds needed momentum and improves students' chances of graduating. Our goal is this Math Pathway Guide will enable students to enroll in mathematics courses that are aligned and relevant to their chosen program of study.

What is a Mathematics Pathway and Who is it for?

The Mathematics Pathway at Daytona State College's School of Mathematics comprises a series of courses designed to guide students from their program or Meta major to fulfill their general education requirements. These Math Pathways were established to streamline credit transfers, minimize excess credit hours, and ensure students enroll in courses pertinent to their future careers.

Each pathway includes a gateway course, serving as the starting point in mathematics for students in their respective programs. Advising should persist from this initial course to subsequent mathematics coursework aligned with the pathway's learning outcomes, the requirements of their chosen field, and those specified by the College Placement Measures (CPM). This booklet is intended to assist you in guiding students through the available mathematics pathways at Daytona State, enabling them to save time and money by selecting the appropriate pathway.

Who is the Pathway for?

Students and Parents:
Entering college and planning the future is an overwhelming task. It is even more important that you take the appropriate courses in Mathematics that lead you to the path of graduation. The School of Mathematics provides you with the courses that are needed to complete the first two years in college, and it provides the prerequisites for all the programs of study offered here at DSC. Use this Math Pathway Guide to help you select the right math courses.

Advisors:
Seeing students graduating that you have guided and advised through-out college is most rewarding. Helping them to find the right path for their math courses is a big part of a student completing a program. The Math Pathway Guide is designed to help students enroll into math pathway courses that are based on the students future goals and career choices.

Program Managers:
As a program manager for the DSC programs, you use the Math Pathway Guide as a tool to choose the most appropriate course for the student's chosen program. The guide ensures to assist in all the stages of this process by selecting the appropriate course to complete the program requirements for graduation.

Jobs for Mathematics Majors that offer Awesome Opportunties

Contrary to popular belief, math careers are not limited to teaching, research, and accounting. Most people don't realize math is involved in just about every job imaginable. Mathematics equips students with logic, problem solving skills, and critical thinking skills that are necessary for many jobs.

The list below is not comprehensive, but it covers mathematical occupations with their level of education, median salaries, and job outlook. What is not shown in the list below, is the many more jobs that don't specifically mention mathematics degrees that are available to graduates with specific mathematics skills.

This list is meant to help and inspire students to see what their career pathway could look like.

Mathematics Occupations	Level Education	Median Pay	Job Outlook (2019-2029)
Accountant	Bachelor's	$71,550	4%
Aerospace Engineer	Bachelor's	$116,500	3%
Biomedical Engineer	Bachelor's	$91,410	5%
Chemical Engineer	Bachelor's	$108,770	4%
Civil Engineer	Bachelor's	$87,060	2%
Computer Programmer	Bachelor's	$86,550	9%
Environmental Engineer	Bachelor's	$88,860	3%
Petroleum Engineers	Bachelor's	$137,720	3%
Epidemiologists	Master's	$70,990	5%
Mathematicians and Statisticians	Master's	$92,030	33%
Registered Nurse	Bachelor's	$73,300	7%
EMTs and Paramedics	Postsecondary Non-Degree Award	$35,400	6%
Police and Detectives	High School Diploma - College Degree	$65,170	5%
Elementary School Teachers	Bachelor's	$59,420	4%
High School Teachers	Bachelor's	$61,660	4%
Middle School Teachers	Bachelor's	$59,660	4%
Health Information Technicians	Postsecondary Non-Degree Award	$42,630	8%
Occupational Therapy Assistant	Associate Degree	$59,200	32%
Physical Therapist Assistant	Associate Degree	$48,990	29%
Radiologic & MRI Technologists	Associate Degree	$62,280	7%
Respiratory Therapist	Associate Degree	$61,330	19%
Surgical Technologists	Postsecondary Non-Degree Award	$48,300	7%
Medical Assistants	Postsecondary Non-Degree Award	$34,800	19%
Phlebotomists	Postsecondary Non-Degree Award	$35,510	17%
Industrial Engineering Technicians	Associate Degree	$56,550	1%

Why Students Should Take Face-to-Face Classes

While online classes offer flexibility and convenience, especially for those with busy schedules or geographical constraints, students should weigh the benefits of face-to-face instruction in terms of immediate support, engagement, hands-on learning, critical thinking development, accountability, and social interaction when making their educational choices.

Students should consider taking face-to-face classes over online classes for several reasons:

Immediate Support and Interaction

In face-to-face classes, students have direct access to professors for immediate support and clarification. This real-time interaction fosters deeper understanding and allows for prompt resolution of queries, which can be challenging to replicate in online settings with asynchronous communication.

Non-verbal Cues and Engagement

Face-to-face classes enable professors to gauge students' comprehension through non-verbal cues such as facial expressions and body language. This feedback loop is vital for tailoring teaching approaches and ensuring students stay engaged and on track, which can be lacking in online courses where such cues are absent.

Hands-on Learning and Collaboration

Many subjects, especially those involving practical application or collaborative work, benefit from face-to-face instruction. In-person classes provide opportunities for hands-on learning experiences, group discussions, and teamwork, which can deepen understanding and facilitate knowledge retention.

Building Critical Thinking Skills

Face-to-face classes often require students to work through problems without relying heavily on external resources. This challenge promotes critical thinking, problem-solving skills, and independence, qualities that are essential for academic success and future career endeavors.

Accountability and Discipline

Attending face-to-face classes can instill a sense of accountability and discipline in students. The structured schedule and physical presence in a classroom environment can help students stay focused, motivated, and on track with their studies, reducing the likelihood of procrastination or distractions often associated with online learning.

Networking and Social Interaction

Face-to-face classes provide opportunities for networking and social interaction with peers, which can enrich the learning experience and foster a sense of community. These connections can lead to valuable friendships, study groups, and professional contacts that extend beyond the classroom.

F2F Completion Rates By Course (2022-23)

- **72%** of students taking MAT1033 Intermediate Algebra
- **72%** of students taking MGF2106 Survey in Mathematics
- **70%** of students taking MGF2107 Liberal Arts Mathematics
- **70%** of students taking MAC1105 College Algebra
- **79%** of students taking STA2023 Elementary Statistics

Online Completion Rates By Course (2022-23)

- **74%** of students taking MAT1033 Intermediate Algebra
- **63%** of students taking MGF2106 Survey in Mathematics
- **75%** of students taking MGF2107 Liberal Arts Mathematics
- **64%** of students taking MAC1105 College Algebra
- **65%** of students taking STA2023 Elementary Statistics

We Are Here To Help!

The School of Mathematics is here to help. The Math Pathway Guide makes it easy to pick the correct math course by giving you all the resources DSC has available and help when needed.

Advising

Academic advisors are ready to help you choose the correct math sequence from the first day on. They are here to ensure you choose the math courses that are most appropriate for your intended major and future career choice. Advisors stay with you throughout each semester and provide you with all the resources necessary to be successful.

Math Faculty

The School of Mathematics faculty is here to support students by holding 10 student support hours face-to-face (F2F) or virtually each week. In addition, faculty answer questions from students through email or by phone. Math faculty are also providing additional study sessions for students and instructor led supplemental instruction sessions.

Academic Support Center

The Academic Support Center, ASC, provides support to all DSC students on all campuses, offering tutoring, workshops, learning sessions, virtual study session, supplemental instructions, computers, and printers. Tutors assist with answering content questions, explaining assignments, finding resources, and offering study suggestions.

Counseling & Accessibility Services (CAS)

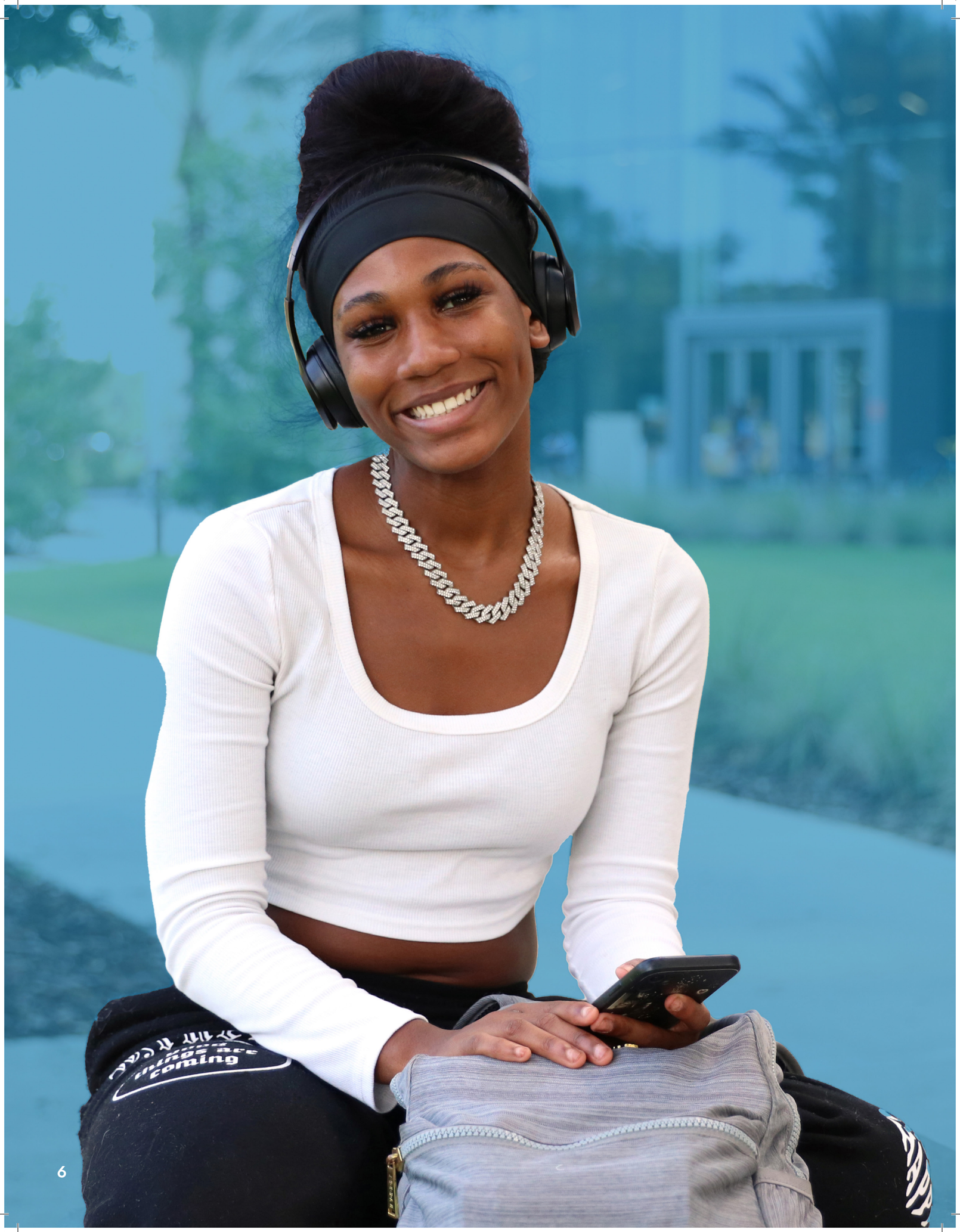
Counseling & Accessibility Services provide students with disabilities access not just to Mathematics courses, but all courses and all other educational programs. CAS advisors work with students individually to determine appropriate adjustments and they support the services each student is eligible to receive. Contact CAS prior to enrollment to arrange for any accommodations in your mathematics class.

Career Services

The Career Services Department helps current students with career path selections, which is an important part in taking the appropriate math class. The department also helps with resume writing, interview preparation, and holds campus job fairs.

Falcon HOPE Center

There is a Faclon HOPE Center located on all of DSC's campuses. It offers support for students facing hardships. You may be eligible to receive financial assistance with tuition, books, uniforms, childcare, and emergency bus passes. A career-ready clothes closet, textbook lending library and many services for homeless and hungry students are also available.


things are
coming

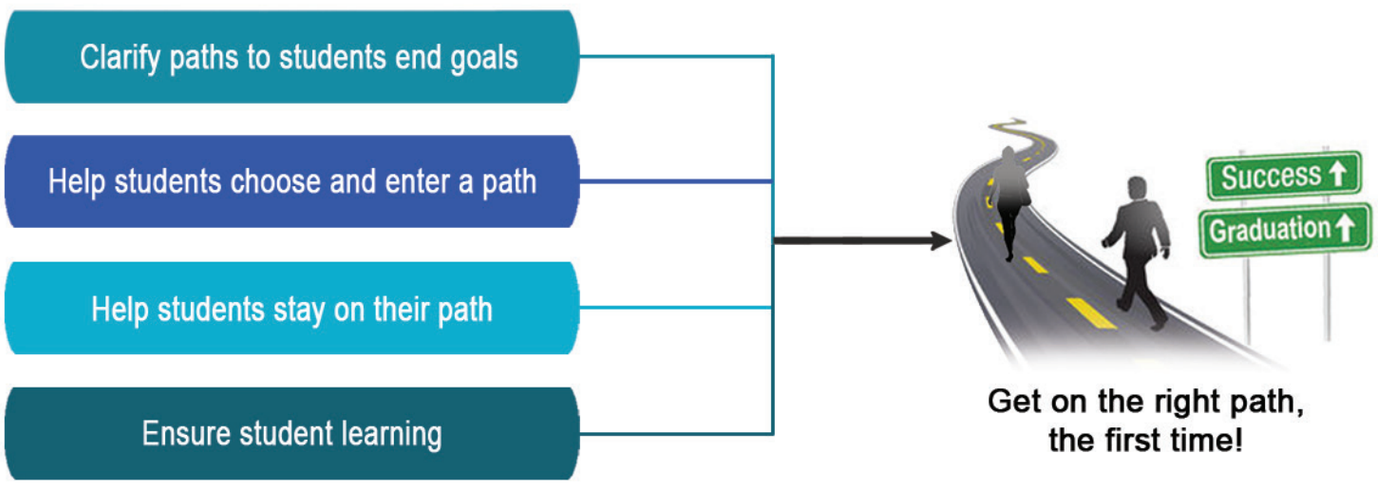
Online Platforms used in the School of Mathematics

Online Platforms	Pearson MyLab	McGraw-Hill ALEKS
Courses	MAT1033, MAC1105 MAC1140, MAC1114 MAC2233, STA2023	MAT0018C, MAT0028C MGF2106, MGF2107 MGF2130
Access Code	YES, students need to purchase an access code	YES, students need to purchase an access code
Cost	Varies by course. Students can select a purchasing option and length of access	Varies by course. Students can select a purchasing option and length of access
Textbook	No book is required	No book is required
Assignments	All class work is completed online. See instructor of record for more details	ALEKS creates a personalized study plan which allows students to complete topics within ALEKS
Discussions	Additional assignments can be found in Falcon Online	Additional assignments can be found in Falcon Online

NEED HELP?
If you need help or have a questions, speak to an advisor or someone in the School of Mathematics before progressing.

Guided Pathways Are the Avenue to Higher Graduation Rates

You are not on this academic journey alone. Our specialized team of faculty, advisors and learning support system will work one on one with you to develop personalized paths to learning, retention, program matriculation and expedited graduation. Let's work together in navigating a streamlined pathway to success based on your unique end goals. The victory line may be closer than imagined.



School of Mathematics Pathway Model

The pathway model offers a multitude of benefits. It involves collaborating with students to identify their ultimate objectives and tailor specialized curricular routes accordingly. Our aim is not just to chart these paths but also to guide students along them, facilitating their journey towards academic success. By doing so, we enhance learning retention, boost matriculation rates, and ultimately increase graduation rates as well.

Four Pillars of Guided Pathways

Create clear curricular pathways to employment and further education.

Help students stay on target to choose and enter their pathway.

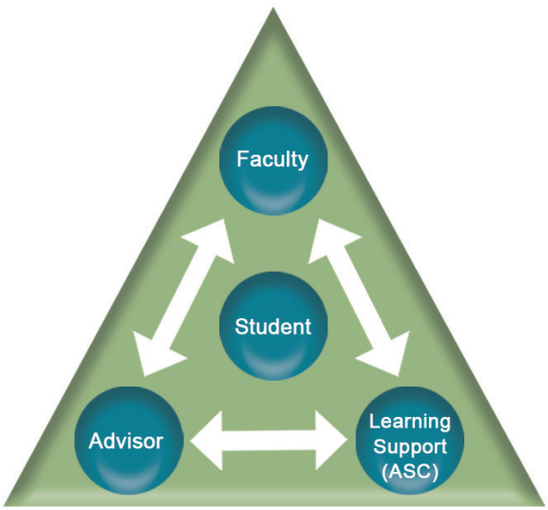
Help students stay on their path.

Ensure that learning is happening with intentional outcomes

How to keep Students on Their Path

Our Triad Leadership Model is intricately designed to provide students with vital oversight, guarantee-ing they receive explicit guidance and strong institutional support to remain steadfastly on the road to success. Through cultivating a supportive atmosphere, we empower students to confront challenges with confidence while nurturing a culture of accountability and responsibility in their academic pursuits.

TRIAD LEADERSHIP MODEL



Frequently Asked Questions

about math courses in the School of Mathematics

Do I receive college credit for MAT1033?

Yes. MAT1033, Intermediate Algebra counts as elective credit toward an Associate of Arts degree. Although it does not satisfy the general education math requirements for associate's degree programs, it provides a solid foundation for students who need to take MAC1105, College Algebra for their majors. Please consult an academic advisor to determine how MAT1033 might apply to your program of study.

What is a prerequisite course?

A prerequisite course is a course that is required to take (and successfully complete) before moving to the next level of classes. (Example: MAT1033 with a grade of C or better is a prerequisite of MAC1105 unless the student tests directly into MAC1105).

Can I take College Algebra MAC1105 after I have taken MAT0028C?

No. If you want to take MAC1105, you'll either need to earn a high enough score on the PERT mathematics test or complete the prerequisite course MAT1033 with a grade of "C" or better.

If I take MGF2130, what Math class should I take next?

If you receive a C or better in MGF2130, you can take either STA2023 or MGF2107.

Which course is easier, MAT1033 or MGF2130?

Easy is subjective. MGF2130 deals with more "real world" applications of mathematics and is appropriate for students entering many fields. The class is a computer-based course that includes some basic algebra, logic, reasoning, geometry, and finance. MAT1033 is an algebra course which prepares students with the mathematics skills needed to move on to MAC1105, MAC1140, MAC1114, and MAC2311, which are required for many science, technology, and engineering programs.

What happens if I take MGF2130, but my program requires MAC1105 College Algebra?

You will need to take MAC1105. To take MAC1105, you have to be eligible based off placement score or take the prerequisite course MAT1033 and receive a grade of "C" or better prior to taking MAC1105.

What happens if my program math pathway requires me to take STA2023?

Either before you complete STA2023 or afterwards, to satisfy the math general education requirements, you will need to take another math class from either pathway, if you meet the requirement.

Do I have computer work in MGF2130?

Yes. The course is based on discussions and computer-based homework.

Do I have computer work in MAT1033?

Yes. The depth of computer work is based on whether you are taking an online or face-to-face. Regardless of the modality, Falcon Online is used in all math classes. For specifics, you should contact your instructor.

Frequently Asked Questions

about math courses in the School of Mathematics

I am taking MAT1033 now, but my program does not require MAC1105, which course should I take next?

If your program does not require MAC1105, you can take either MGF2130 or MGF2107. If MAC1105 is required, then it is recommended taking them both to fulfill your math general education requirement instead of MAC1105.

Can I repeat a course to improve my GPA?

If you earn a grade of "C" or better in any course, that grade is permanent. You are not allowed to repeat a course with a "C" grade to try to improve your GPA. You may audit a course where you have earned a "C" or better if you just want a refresher on the course content.

What can I do if I earn a D in a course in which I need to have a C or better?

DSC will allow you to retake the course a second time to earn a better grade. Note that both courses do appear on your transcript.

Is there a particular order in which to take MAC1140 and MAC1114?

You are allowed to take MAC1140 and MAC1114 in either order, or concurrently for that matter, as both carry a prerequisite of MAC1105. However, if you plan to take the two courses sequentially (in two different semesters), then it is recommended that MAC1140 be taken before MAC1114.

Is the Math PERT score requirement for placement into Statistics the same as for Trigonometry and Precalculus?

Yes, the Math PERT score of 135-144 is the same for placement into STA2023 Elementary Statistics, MAC1114 Trigonometry, and MAC1140 Precalculus.

Can DEVX students enroll directly into MGF2130?

DEVX students can go straight into MGF2130.

What is the Math PERT score to get into MGF2130 for a non-DEVX student?

The PERT score to place into MGF2130 is 114-122.

Can students who completed MAT1033 enroll in STA2023?

Yes, a student who has completed MAT1033 with a grade "C" or better can enroll into STA2023.

Can students who completed MAC1105 enroll in STA2023?

Yes, a student who has completed MAC1105 with a grade "C" or better can enroll into STA2023.

Frequently Asked Questions

about math courses in the School of Mathematics

Will MGF2130 be allowed for grade forgiveness for MGF2106?

If you have been unsuccessful in MGF2106 and take MGF2130 and received a grade “C’ or better, it will count for grade forgiveness for MGF2106.

Will MGF2106 Survey in Mathematics still count as a math requirement for graduation?

The answer varies. Starting fall 2024, MGF2106 will not count as a math requirement for graduation depending on your program catalog year. Check with an academic advisor for more details.

Does MGF2130 Mathematical Thinking count as a third attempt if a student has previously taken MGF2106 twice?

Because MGF2130 replaces MGF2106, MGF2130 will count as the third attempt if the student has attempted MGF2106 twice already.

Is MAC1105 still a prerequisite for STA2023?

According to the state mandate, no core course can be a prerequisite of another core course. So MAC1105 is not a prerequisite for STA2023. However, it is strongly recommended students take either MAC1105 or MGF2130 before taking STA2023.

Can students classified as DEVX enroll directly into STA2023?

DEVX students can go straight into STA2023. However, all other students must place into STA2023 based on their PERT scores. It is strongly recommended students take either MAC1105 or MGF2130 before taking STA2023.

Can students who completed MGF2130 progress to STA2023?

Yes, students who have completed MGF2130 can enroll into STA2023.

Can a student who completed MAT1033, MAC1105, MGF2107, or MGF2130 with a grade of C or higher bypass the placement test and enroll in STA2023?

Students who completed MAT1033, MAC1105, MGF2106, MGF2107, or MGF2130 with a grade of C or higher can bypass the placement test and directly enroll in STA2023.

Can I take MAC1140 and MAC2233 concurrently?

No, such a plan is highly inadvisable; MAC1140 is a prerequisite for MAC2233, as the material in MAC2233 depends on the material in MAC1140.

I need to take a certain math course, but all the sections are full. What can I do?

The best recommendation for this is a two-step process:

a) Classes undergo periodic purges of students who have not paid their fees. You can go online to see if the number of students in a class has dropped as a result.

b) If the class is still at capacity you may contact the School of Mathematics Chairperson, Marc Campbell, Building 500, room 135, ext. 3520.

Frequently Asked Questions

about math courses in the School of Mathematics

What math courses can I take to fulfill my general education math requirements at DSC?

MAC1105, MGF2106/MGF2130, MGF2107, STA2023 are the most frequently taken; However, other courses such as, but not limited to MAC1114, MAC1140, MAC2233, MAC2311, MAC2312, MAC2313, MAP2302 do fulfill general education requirements for math at DSC.

Is there any math course I cannot use to fulfill my general education math requirement at DSC?

MAT1033 – Intermediate Algebra, MAT0018C – Pre-Algebra, MAT0028C – Elementary Algebra, MTB1348 – Applied Technical Math I, and MAT0056L, Foundational Mathematics.

What courses require me to register for a lab?

MAT0018C Pre-Algebra, MAT0028C Elementary Algebra, MAC2311C Calculus I, MAC2312C Calculus II, MAC2313C Calculus III and MAP2302C Differential Equations.

Who do I see about getting an override into a full class or skipping a prerequisite course?

The School of Mathematics Chairperson, Marc Campbell, Building 500, room 134, ext. 3520. Note, documentation will be required.

If I am struggling with my math class, where can I get help?

Your instructor has student support hours throughout the week specifically for seeing students who need additional help.Another resourse is the Academic Support Center (ASC). A center is located on every campus:

Daytona Beach Campus
Building 500, room 124
386-506-3673

Deland Campus
Building 6, room 215
386-785-2087

Flagler Palm Coast Campus
Building 2, room 119
386-246-4835

New Smyrna Campus
Building 2, room 104
386-423-6345

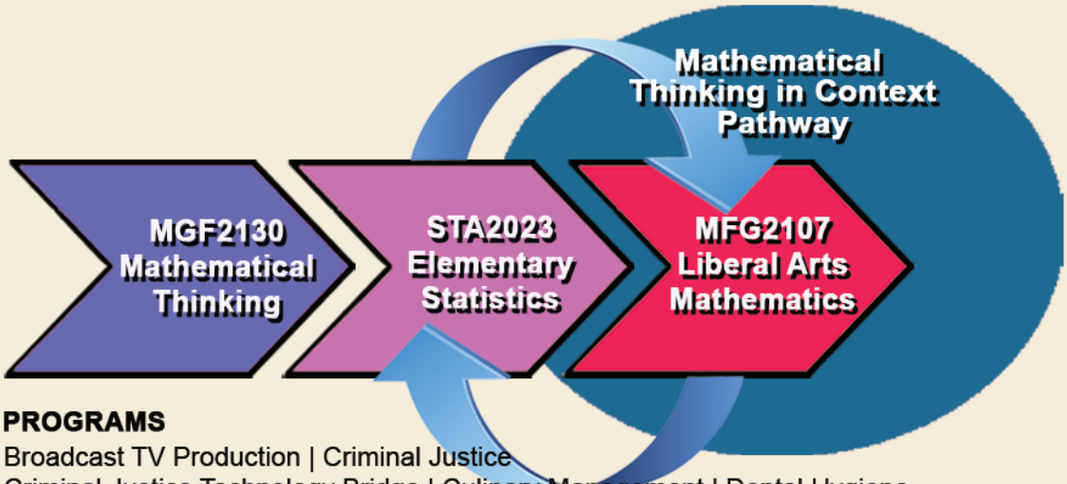
Deltona Campus
Building 1, room 209
386-789-7306

Should you take MAT1033, MGF2106, MGF2107, or MGF2130

What sets these courses apart?

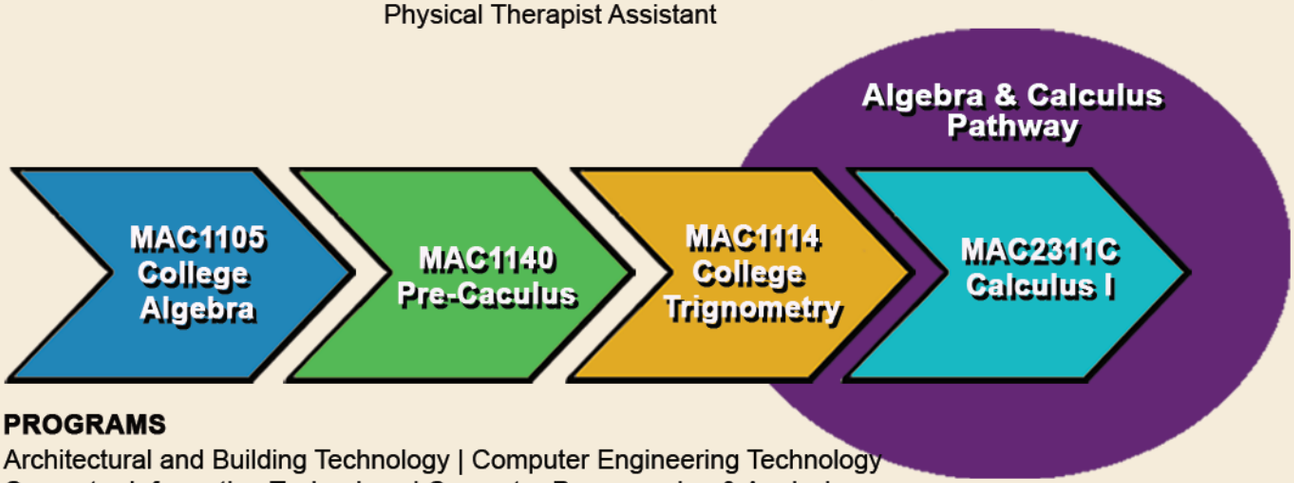
MAT1033 Intermediate Algebra	MGF2106 Survey in Mathematics	MGF2130 Mathematical Thinking	MGF2107 Mathematics for Liberal Arts
MAT1033 does not satisfy the mathematics general education requirement, but counts as a general elective.	MGF2106 does satisfy the mathematics general education requirement, catalog years 2023 and before.	MGF2130 does satisfy the mathematics general education requirement and will replace MGF2106 starting Fall 2024.	MGF2107 does satisfy the mathematics general education requirement.
MAT1033 is the prerequisite to MAC1105 which is the core course in the Algebra and Calculus Pathway.	MGF2106 will be offered in a limited capacity Fall 2024 and Spring 2025.	MGF2130 does not have a prerequisite and can be used as a second course in the Statistical Reasoning Pathway.	MGF2107 does not have a prerequisite and can be used as a second course in the Statistical Reasoning and Mathematical Thinking Pathway.
MAT1033 grade is based on Quizzes, Projects, Homework and Tests.	MGF2106 grades are based on Aleks, Attendance, and Projects.	MGF2130 grades are based on ALEKS, Discussion and Responses, and Homework.	MGF2107 grades are based on Aleks, Attendance, and Projects.
Delivery modalities include Face-to-Face (F2F) and Online.	Delivery modalities include Face-to-Face (F2F), Hybrid and Online.	Delivery modalities include Face-to-Face (F2F) and Online.	Delivery modalities include Face-to-Face (F2F) and Online.

A.S. Degree Pathway



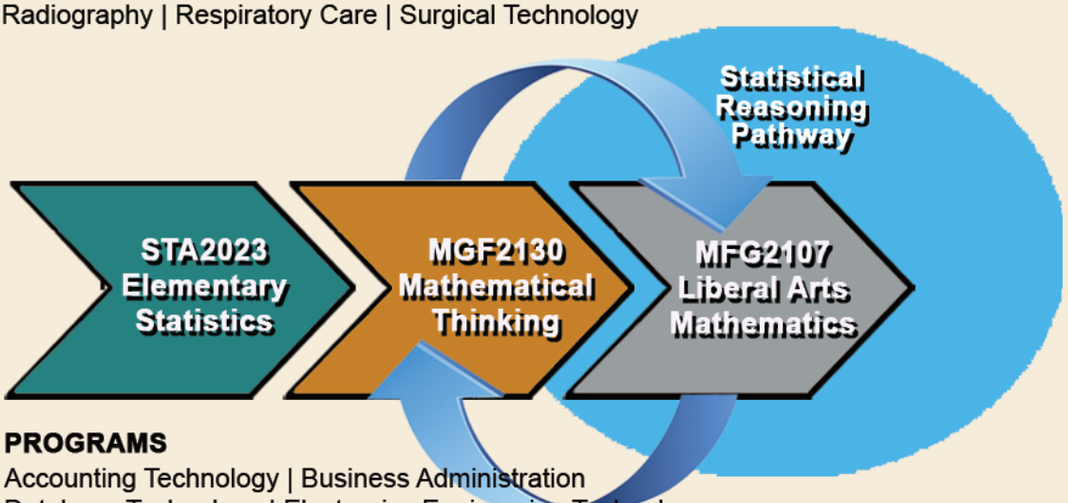
PROGRAMS

Broadcast TV Production | Criminal Justice
Criminal Justice Technology Bridge | Culinary Management | Dental Hygiene
Digital & Interactive Media Production | Early Childhood Education
Emergency Medical Services | Hospitality Management | Music Production Technology
Nursing (Limited Access) | Nursing (Transition into Profession) (Limited Access)
Occupational Therapy Assistant | Operations Management Technology
Office Administration | Paralegal Studies | Photographic Technology
Physical Therapist Assistant



PROGRAMS

Architectural and Building Technology | Computer Engineering Technology
Computer Information Technology | Computer Programming & Analysis
Diagnostic Medical Sonography | Drafting and Design Technology
Engineering Technology | Environmental Science Technology | Interior Design Technology
Network Systems Technology | Radiography | Respiratory Care | Surgical Technology



PROGRAMS

Accounting Technology | Business Administration
Database Technology | Electronics Engineering Technology

Math Pathway Overview

Commencing from the academic year 2024-25, it's imperative that incoming students are provided with advisement concerning the most suitable math pathway aligned with the requisite mathematical skills for their selected program and career aspirations (reference: 6A-10.024, F.A.C).

Each pathway entails a critical "gateway/core course," serving as the foundational stepping stone for students. Subsequent mathematics coursework is strategically tailored to meet the specific requirements of their chosen field, as well as those delineated in the Common Prerequisite Manual.

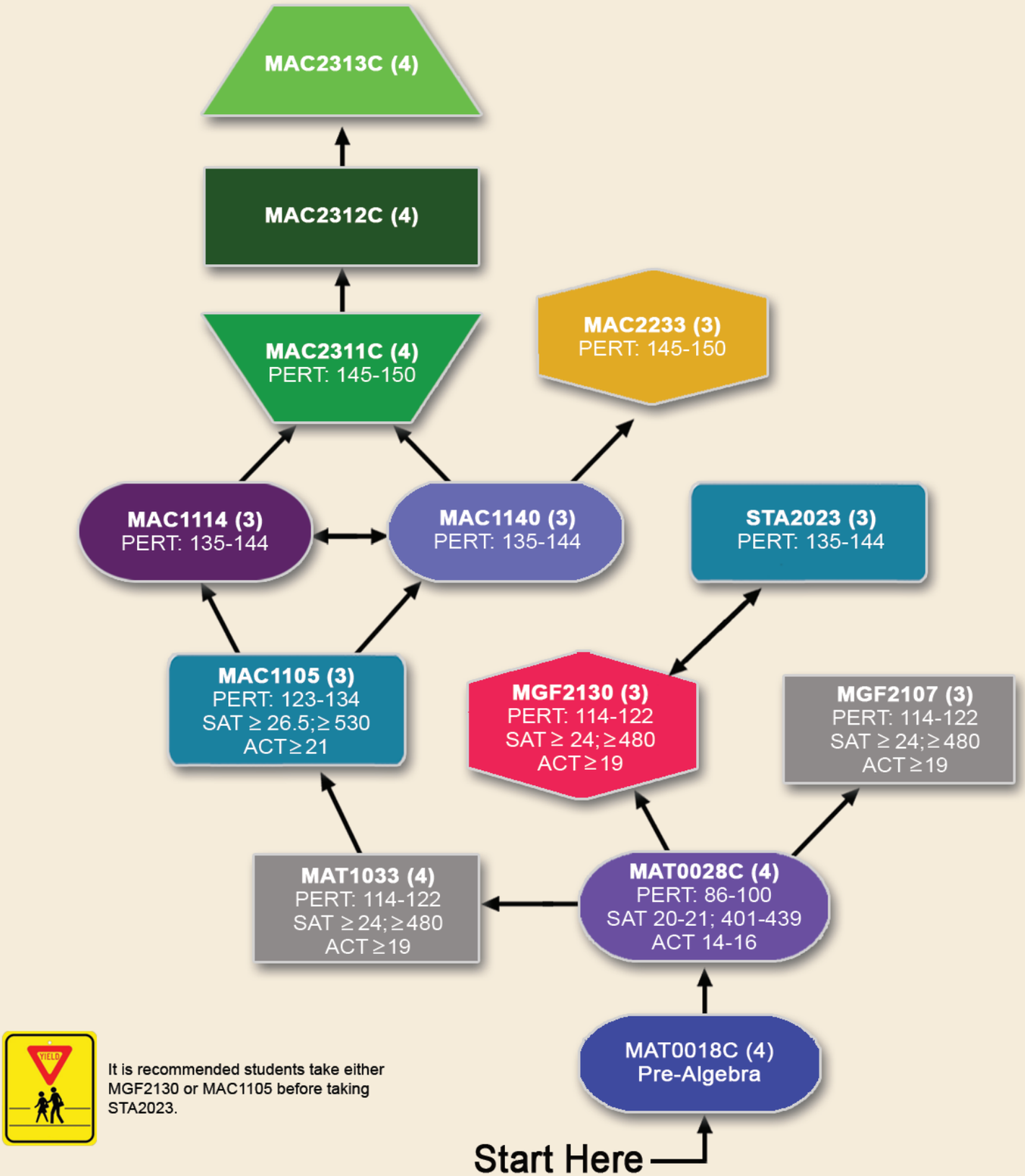
This structured approach not only ensures that students embark on a trajectory best suited for their academic and professional journey but also facilitates smoother transitions between courses and enhances overall academic success. By aligning mathematical learning with program objectives, students are equipped with the essential skills and knowledge needed to excel in their chosen fields.

Math Pathway Chart

	Algebra through Calculus Pathway	Statistical Reasoning Pathway	Mathematical Thinking Pathway
LEVEL I Gateway/Core Courses	MAC1105 is a core course which satisfies mathematics general education requirements.	STA2023 is a core course which satisfies mathematics general education requirements.	MGF2130 is a core course which satisfies mathematics general education requirements.
LEVEL II Course Offering	MAC1140 and/or MAC1114 These courses satisfies the mathematics general education requirements.	MGF2130, MAC1105, and/or MGF2107. These courses satisfies the mathematics general education requirements.	MGF2107 and/or STA2023 These courses satisfies the mathematics general education requirements.
LEVEL III Course Offering	MAC2311C, MAC2312C and/or MAC2313C These courses satisfies the mathematics general education requirements.		

Under the Statistical Reasoning Pathway, it is recommended students take one of the LEVEL II courses; MGF2130 or MAC1105 before taking STA2023.

Mathematics Course Sequence and Placement Scores



It is recommended students take either MGF2130 or MAC1105 before taking STA2023.

School of Mathematics Placement Scores

Daytona State College Placement Updated June 2024

	ENC0027	ENC0055L	ENC1101	MAT0018C	MAT0028C	MAT0056L	MAT1033 MGF2130 MGF2107	MAC1105	MAC1140 MAC1114 STA2023	MAC2233 MAC2311
PERT										
Reading	≤ 83	84-105	**106 &**							
Writing	≤ 89	90-102	**103**							
Math				≤ 85	86-100	101-113	**114-122**	**123-134**	135-144	145-150
SAT- 2 digit										
Reading	≤ 21	22-23	**24 &**							
Writing	≤ 22	23-24	**25**							
Math				< 20	20-21	22-23	**24**	**26.5**		
SAT (Digital) and 3 digit										
Evidence-Based Reading & Writing	≤ 420	421-489	**490**							
Math				≤ 400	401-439	440-479	**480**	**530**		
ACT										
Reading	≤ 16	17-18	**19 &**							
English	≤ 14	15-16	**17**							
Math				≤ 13	14-16	17-18	**19**	**21**		
ACCUPLACER (Next Gen)										
Reading	200-239	240-255	**256 &**							
Writing	200-236	237-252	**253**							
Quantitative Reasoning, Algebra, & Statistics (QAS)				200-220	221-240	241-260	**261**			
Classic Learning Test (CLT)										
Sum of the Verbal Reasoning and Grammar/Writing			**38**							
Quantitative Reasoning							**16**			

Academic Support Center (ASC) Is Here To Help You Succeed!

The staff and resources located at the Academic Support Center (ASC), offer extra academic support to help you succeed. While the DSC tutors are assisting you Online or in person, it is extremely important that you have been consistently following the direction of the faculty member who is teaching your course(s). That means completing or attempting to complete your assignments, participating in class, and following whatever your instructor, lecturer, or professor has outlined as the expectations for your success in the course(s).

Our DSC tutors will not do your work for you. We can offer assistance, but students must be the ones doing the coursework. If you have questions about a homework problem, a mathematical concept, or class assignment, we expect you to have tried to complete these things on your own. Having struggled with the material before you schedule an appointment with us will actually help us do our job. You will not learn mathematics without some effort on your part as the student, so please keep that in mind while you are working with our tutors. Bring your specific questions to your appointment so that you can let the tutor know exactly where you are getting frustrated, confused, or lost. We don't always know all of the answers, but we can help you work through a challenging problem so you can hopefully complete the next one on your own.

Services and Resources

- Tutoring available both in lab and Online (use the chat in Falcon Online to connect with a virtual tutor)
- Computer labs with study spaces and science models on all campuses
- Helpful handouts and videos covering math, science, study skills, and more, can be found on our ASC Infoguide
- Review sessions covering course and subject specific content for math classes, math exams, class discussions, class projects, etc.
- Workshops for GKT, TEAS, Nursing, and others
- Test prep resources for various standardized tests including TEAS, GKT, TABE, etc.

Locations

The ASC is here to help you at any of our six campus locations and Online:

- Daytona Campus
- DeLand Campus
- Deltona Campus
- Flagler/Palm Coast Campus
- New Smyrna Beach/Edgewater Campus
- Virtual (via ASC chat)

For questions, please contact us at ASC@DaytonaState.edu.

Study Guide to Success!

Because of the cumulative nature of mathematics, current knowledge of prerequisite skills and concepts greatly increases your opportunity for success in mathematics courses. Our goal is to help you succeed the first time that you enroll in a mathematics course and assessment of what you currently know is a very important part of helping you succeed.

We also understand that while you might have successfully completed a particular mathematics course, some of the necessary skills and concepts needed, might be a bit rusty. So, we have put together a sample study guide for each course. We hope that by completing these 5 to 7 problems in the study guide, it will not only give you a true picture of your current level of knowledge of a course, but also help us determine the best placement for the student. This will help the student be ready to learn new concepts when the student does enroll in the right mathematics course.

Student success matters from start to finish. They may require additional assistance outside of the classroom, and the School of Mathematics is here to help. Students can take advantage of the following services:

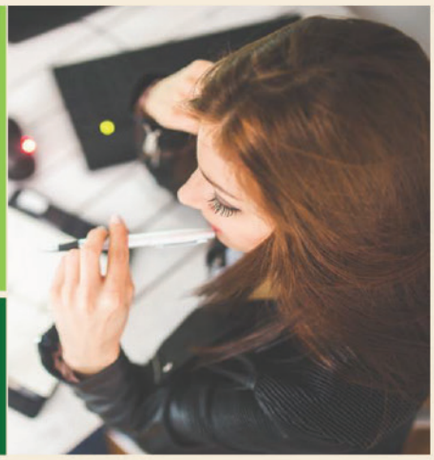
- **Faculty Student Support Hours** – Instructors hold 10 hours every week. Instructors, can answer questions from the students through email, phone and in person.

- **Supplemental Instruction (SI)** – Looking for a review of the class material covered during the week? SI provides a weekly review session led by a peer who has previously taken the course and can provide a deeper understanding of the course material as well as effective study skills. Current courses supported by SI include: MAT1033 Intermediate Algebra, MAC1105 College Algebra, STA2023 Statistics, MAC1114 Trigonometry and MAC2311C Calculus I.

- **Tutoring** – One-on-one tutoring is provided through the Academic Support Center on all campuses. Students can simply walk in and ask a question. Tutors will assist in finding resources, clarifying class content, explaining assignments, and offering study suggestions.

Guided Pathways Checklist

This tool will help you, ensuring that students are on the correct pathway.



Mapping Pathways to Student End Goals

- ☐ Each program is well designed to guide and prepare students to enter an academic and career path.
- ☐ Detailed information is provided on college's website on career choices and further education opportunities.
- ☐ Programs are clearly mapped out for each student.
- ☐ Students know which courses they should take and in which sequence.
- ☐ Courses needed for the success in each program are clearly identified.

Helping Students Choose and Enter a Pathway

- ☐ Every new student is helped to explore career/college options, choose a program of study, and develop a full-program plan.
- ☐ Special support is provided to help unprepared students to succeed in the gateway courses.
- ☐ Determine entry-level positions, salary scales, and industry qualifications.
- ☐ Required courses are aligned with student's fields of study.
- ☐ The College works with high schools and other feeder areas to motivate and prepare students to enter college-level coursework when they enroll in college.

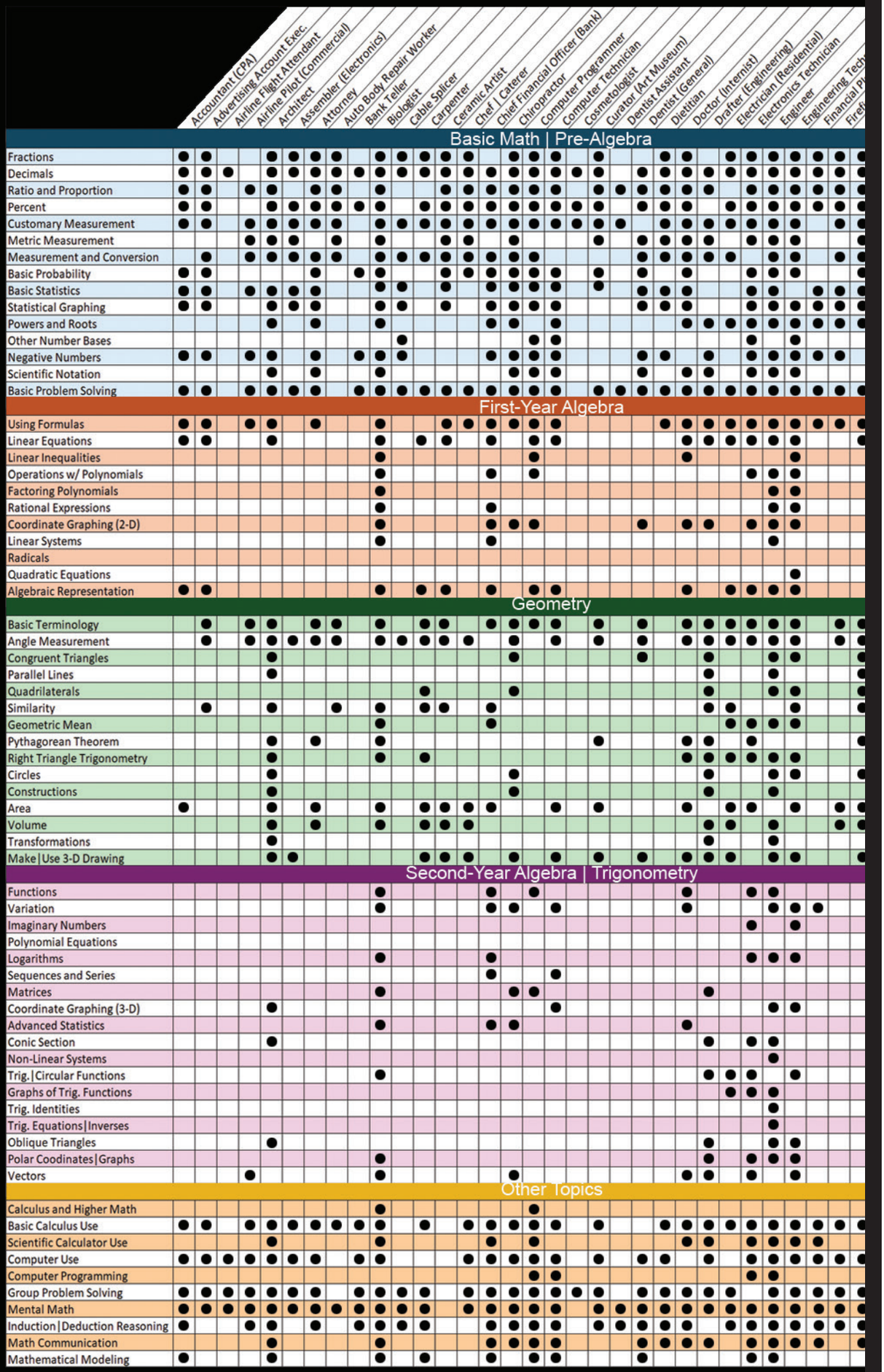
Keeping Students on the Path

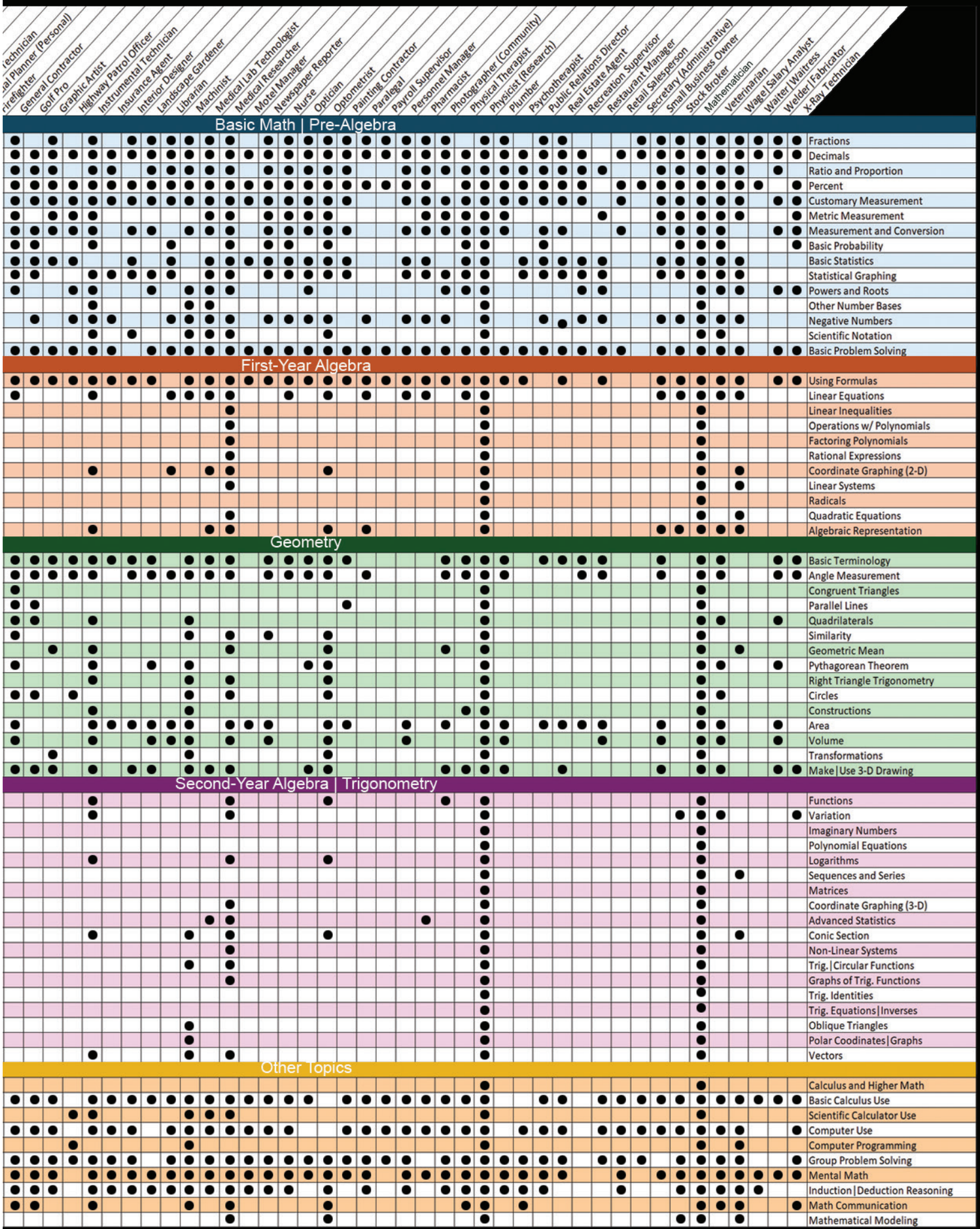
- ☐ Advisors monitor which program every student is in and how far along the student is toward completing the program requirements.
- ☐ Students can easily monitor their progress and what they need to complete the program.
- ☐ Advisors and students are alerted when students are at risk of not completing their program and have policies in place to get students back on track.
- ☐ The college schedules courses to ensure that students can take the courses they need when they need them.

Ensuring That Students Are Learning

- ☐ Students have plenty of opportunities to apply and deepen knowledge and skills through projects, internships, clinicals, group projects, service learning, and other active learning activities.
- ☐ Results of learning outcome assessments are used to improve teaching and learning through program review, professional development, and other campus efforts.

When will I ever use this math?




Technician
Planner (Personal)
Firefighter
General Contractor
Golf Pro
Graphic Artist
Highway Patrol Officer
Instrumental Technician
Insurance Agent
Interior Designer
Landscape Gardener
Librarian
Machinist
Medical Lab Technologist
Medical Researcher
Motel Manager
Newspaper Reporter
Nurse
Optician
Optometrist
Painting Contractor
Paralegal
Payroll Supervisor
Personnel Manager
Pharmacist
Photographer (Community)
Physical Therapist
Physicist (Research)
Plumber
Psychotherapist
Public Relations Director
Real Estate Agent
Recreation Supervisor
Restaurant Manager
Retail Salesperson
Secretary (Administrative)
Small Business Owner
Stock Broker
Mathematician
Veterinarian
Wage|Salary Analyst
Waiter|Waitress
Welder|Fabricator
X-Ray Technician
Basic Math | Pre-Algebra
Fractions
Decimals
Ratio and Proportion
Percent
Customary Measurement
Metric Measurement
Measurement and Conversion
Basic Probability
Basic Statistics
Statistical Graphing
Powers and Roots
Other Number Bases
Negative Numbers
Scientific Notation
Basic Problem Solving
First-Year Algebra
Using Formulas
Linear Equations
Linear Inequalities
Operations w/ Polynomials
Factoring Polynomials
Rational Expressions
Coordinate Graphing (2-D)
Linear Systems
Radicals
Quadratic Equations
Algebraic Representation
Geometry
Basic Terminology
Angle Measurement
Congruent Triangles
Parallel Lines
Quadrilaterals
Similarity
Geometric Mean
Pythagorean Theorem
Right Triangle Trigonometry
Circles
Constructions
Area
Volume
Transformations
Make|Use 3-D Drawing
Second-Year Algebra | Trigonometry
Functions
Variation
Imaginary Numbers
Polynomial Equations
Logarithms
Sequences and Series
Matrices
Coordinate Graphing (3-D)
Advanced Statistics
Conic Section
Non-Linear Systems
Trig.|Circular Functions
Graphs of Trig. Functions
Trig. Identities
Trig. Equations|Inverses
Oblique Triangles
Polar Coodinates|Graphs
Vectors
Other Topics
Calculus and Higher Math
Basic Calculus Use
Scientific Calculator Use
Computer Use
Computer Programming
Group Problem Solving
Mental Math
Induction|Deduction Reasoning
Math Communication
Mathematical Modeling

MAT0028C Study Guide

(Solutions on pg. 34-35)

If you can answer these questions correctly, you are prepared to take MAT0028C.

1. Add or subtract as indicated: $\frac{8}{15} + \frac{3}{20} - \frac{4}{45}$

2. Add the mixed numbers by using improper fractions. $7\frac{5}{6} + 3\frac{3}{5}$

3. Alexa won a legal settlement for $418,500. Her lawyer received $\frac{1}{3}$ of the settlement.
   a. How much money did the lawyer get?
   b. How much money did Alexa get?

4. Solve the proportion. $\frac{0.8}{3.1} = \frac{4}{p}$

5. Suppose a professional golfer who is ranked 10th in the world on the PGA Tour earns $2,183,000 per year. He pays his coach $185,000 per year. What percent of his income goes toward his coach? Round your answer to the nearest tenth of a percent.

MAT1033 Study Guide

(Solutions on pg. 36-37)

If you can answer these questions correctly, you are prepared to take MAT1033.

1. Simplify $(2a + 3b - 7) - 4(-5a - 6b + 12)$

2. Which of the ordered pairs is a solution to the equation $2x - 3y = 7$
   - **a.** (2, 1)
   - **b.** (-1, -3)

3. Find the slope of a line passing through the points (-4, -2) and (6, -9)

4. Convert 282,000 to scientific notation.

5. Simplify $\dfrac{-5(6)}{-3(-6) - 8}$

6. Solve $3t - 6 + 12t = 12 + 24t - 3$

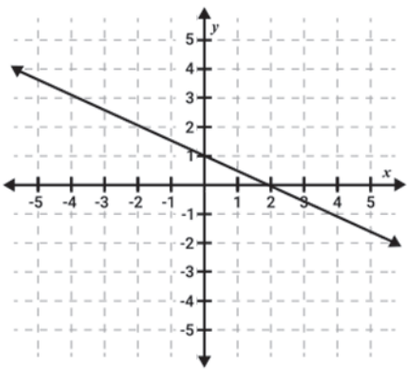
MAC1105 Study Guide

(Solutions on pg. 38-39)

If you can answer these questions correctly, you are prepared to take MAC1105.

1. Find the domain of $f(x) = \sqrt{x - 5}$

2. Write the equation of the line below:



3. Factor $3x^2 - 14x - 24$

4. Solve the following system and state the value of x

$$x = -3y + 1$$
$$2x + 4y = 12$$

5. Solve $x^2 + 6x + 5 = 0$

6. Solve $\frac{10}{x+1} - 4 = \frac{3}{x+1}$

7. Solve $-2x + 5 \geq 11$ and write your answer in interval notation.

MAC1140 Study Guide

(Solutions on pg. 40-43)

If you can answer these questions correctly, you are prepared to take MAC1140.

1. Use the quadratic formula to solve $9x^2 - 6x - 4 = 0$.

2. Find the difference quotient for the function $f(x) = -x^2 + x - 2$ and then simplify.

3. The cost of a plastic sewer pipe varies jointly as its diameter and length. If a 20 foot pipe with a diameter of 6 inches costs $18.60, then what is the cost of a 16 foot pipe with a diameter of 8 inches?

4. Find the vertex of the quadratic function $f(x) = 3x^2 - 12x + 1$.

5. The sum of the three numbers is 40. The difference between the largest and smallest is 12, and the largest is equal to the sum of the two smaller numbers. Find the numbers.

MGF2130 & MGF2106 Study Guide

(Solutions on pg. 44-46)

If you can answer these questions correctly, you are prepared to take MGF2130 and MGF2106.

1. Add and write your answer as a mixed number in simplest form. $\frac{3}{4} + 5\frac{5}{6}$

2. Solve for v. Simplify your answer as much as possible.

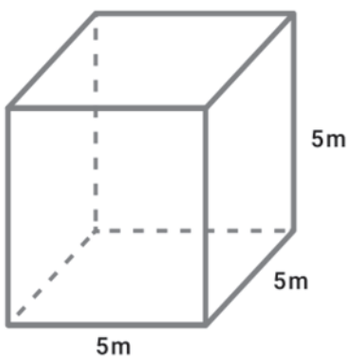
$$2(v + 5) = -2(8v - 3) + 4v$$

3. Use substitution to solve the system.

$$-5x + 3y = -35$$
$$3y + 19 = x$$

4. A TV has a listed price of $636.99 before tax. If the sales tax rate is 9.75%, find the total cost of the TV with sales tax included. Round your answer to the nearest cent, as necessary.

5. Find the volume of the rectangular prism.



6. Consider the equation $y = -\frac{1}{3}x + 3$

a. Is (3, 2) a solution to the above equation.

b. Graph the above equation.

MGF2107 Study Guide

(Solutions on pg. 47-49)

If you can answer these questions correctly, you are prepared to take MGF2107.

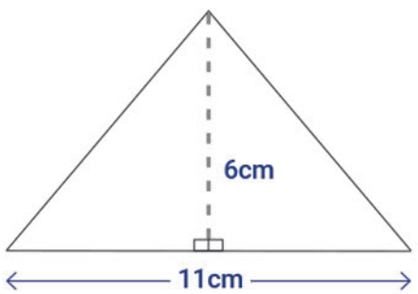
1. Perform the indicated operations: $5\frac{5}{6} - \frac{3}{4}$

2. Given $4(x + 5) = 3(x - 4) + 2x$, solve for x.

3. Solve the system $2X + 3y = 9$, $3x + 2y = 11$ and find y.

4. A TV has a listed price of $636.99 before tax. If the sales tax rate is 9.75%, find the total cost of the TV with sales tax included. Round your answer to the nearest cent, as necessary.

5. Find the area of the triangle below.



6. Consider $3x + 4y = -12$. Is $(2, -4\frac{1}{2})$ a solution to the equation?

7. Graph $3x + 4y = -12$

MAT0028C Study Guide Solutions

1. First, we find the least common denominator (LCD) by factoring each denominator:

$$15 = 3 * 5$$
$$20 = 2 * 2 * 5$$
$$45 = 3 * 3 * 5$$

The LCD is $2 * 2 * 3 * 3 * 5 = 180$. We convert each fraction to an equivalent fraction having a denominator of $2 * 2 * 3 * 3 * 5$. We accomplish this by multiplying the numerator and the denominator of each original fraction by the factors missing from the denominator:

$$\frac{8 * 2 * 2 * 3}{3 * 5 * 2 * 2 * 3} - \frac{3 * 3 * 3}{2 * 2 * 5 * 3 * 3} + \frac{4 * 2 * 2}{3 * 3 * 5 * 2 * 2}$$

We now combine the numerators and then simplify our answer to lowest terms.

$$\frac{96 - 27 + 16}{180} = \frac{85}{180} = \frac{5 * 17}{36 * 5} = \frac{17}{36}$$

Thus the final answer is $\frac{17}{36}$

2. We write each mixed number as an improper fraction:

$$7\frac{5}{6} + 3\frac{3}{5} = \frac{47}{6} + \frac{18}{5}$$

Note that the LCD is 30.

$$\frac{47}{6} + \frac{18}{5} = \frac{47 * 5}{6 * 5} + \frac{18 * 6}{5 * 6} = \frac{235}{30} + \frac{108}{30} = \frac{343}{30}$$

We will now use division to convert the improper fraction to a mixed number

$$343 \div 30 = 11 + \frac{13}{30}$$

The result is $11\frac{13}{30}$

3. (a) We need to find what is $\frac{1}{3}$ of \$418,500. We have,

$$\frac{1}{3} * \$418{,}500 = \frac{418{,}500}{3} = \frac{(3 * 139{,}500)}{3} = 139{,}500$$

(b) Alexa will get what remains of the \$418,500 after the lawyer gets his cut:

$$\$418,500 - \$139,500 = \$279,000.$$

Alexa gets \$279,000.

4. Set cross products equal to one another

$$0.8p = 3.1 * 4$$

Simplifying the RHS, we get

$$0.8p = 12.4$$

Dividing both sides by 0.8, we have

$$p = 15.5$$

5. We want to find what percent of 2,183, 000 is \$185, 000. Let p be the percent of the golfers earnings that goes to his coach. We have,

$$\frac{185{,}000}{2{,}183{,}000} = \frac{p}{100}$$

The ratio on the right hand side (RHS) can be simplified by a factor of 1000. Strike through three zeros in the numerator and the denominator.

$$\frac{185}{2{,}183} = \frac{p}{100}$$

Set the cross products to equal one another

$$185 * 100 = 2{,}183p$$

Simplifying the RHS, we get

$$18{,}500 = 2{,}183p$$

Divide both sides by 2,183

$$\frac{18{,}500}{2{,}183} = \frac{2{,}183p}{2{,}183}$$

Simplifying the RHS we get

$$\frac{18{,}500}{2{,}183} = p$$

Simplifying the LHS, we get

$$8.47 = p$$

The golf pro spends about 8.5% of his earnings on his coach.

MAT1033 Study Guide Solutions

1. Removing parentheses and changing signs, we get

$2a + 3b - 7 + 20a + 24b - 48$

Now we combine all like terms, we get

$2a + 20a + 3b + 24b - 7 + 48 = 22a + 27b - 55$

2. We are going to substitute the values of x and y into the equation:

a. For (2, -1) we have $2(2) - 3(-1) = 4 + 3 = 7$, so that makes the equation true.

b. For (-1, -3) we have $2(-1) - 3(-3) = -2 + 9 = 7$, so that makes the equation true.

3. For the slope

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$= \frac{-9 - (-2)}{6 - (-4)}$$
$$= \frac{-9 + 2}{6 + 4}$$
$$= -\frac{7}{10}$$

4. We have $2.82 * 10^5$

5. In simplifying, we have

$$\frac{-5(6)}{-3(-6) - 8} = \frac{-30}{18 - 8}$$
$$= \frac{-30}{10}$$
$$= -3$$

6. Combining like terms, we get

$3t + 12t - 6 = 24t + 12 - 3$

$15t - 6 = 24t + 9$. Subtracting 9 on both sides

$15t - 9 - 6 = 24t + 9 - 9$

$15t - 15 = 24t$. Subtracting $15t$ on both sides

$15t - 15 - 15t = 24t - 15t$. Upon simplifying the RHS and LHS, we get

$-15 = 9t$. Dividing both sides by 9

$-\frac{15}{9} = t$. Simplifying the RHS we get

$-\frac{5}{3} = t$

MAC1105 Study Guide Solutions

1. Since you cannot take the square root of a negative number because the result would yield an imaginary number, the domain is restricted to taking the square root of a positive number. So set the portion inside the square root $x - 5 \geq 0$. Add 5 to both sides, we get $x \geq 5$. The solution set is $[5, \infty)$.

2. Looking at the graph the y-intercept is (0, 1) and the x-intercept is (2, 0). Using the slope formula

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 0}{0 - 2} = -\frac{1}{2}$$

Now, the slope intercept form of the line is $y = mx + b$. So $y = -\frac{1}{2}x + 1$, and the y intercept is (0, 1).

3. Using the trial and error method, use factors of 3 and -24 that will sum to -14. We will have 2 binomials $(3xa)(xb)$, we have no choice with the factors of 3, so we are looking at the factors of 24. With repeated attempts we get $(3x + 4)(x - 6)$. Notice the middle term, $4x - 18x$, sums to $-14x$.

4. Set up the equations in standard form of a line

(1) $x + 3y = 1$,

(2) $2x + 4y = 12$,

We are going to solve the equation for x by eliminating y. Multiply (1) by -4 and (2) by 3. So you have

$$-4x - 12y = -4$$
$$6x + 12y = 36$$

Notice the ys are eliminated when adding the resulting equations. So you have

$2x = 32$. Dividing both sides by 2, we get

$\frac{2x}{2} = \frac{32}{2}$. Upon simplification, we get

$x = 16$

5. We are going to solve the quadratic equation by factoring. We have 2 binomials (using trial and error): $(x + 5)(x + 1) = 0$. Notice the sum of the factors of 5 and 1 add to 6, which is the middle factor of the quadratic equation. Set $x + 5 = 0$ and set $x + 1 = 0$, which yields $x = -5$ and $x = -1$.

6. The LCD is $x + 1$ for the equation. Notice x cannot be equal to -1, since that results in dividing by zero. Multiplying each term of the equation by $x + 1$, we get

$10 - 4(x + 1) = 3$. Distributing 4, we get

$10 - 4x - 4 = 3$. Combining like terms, we get

$-4x + 6 = 3$. Subtracting 6 on both sides, we get

$-4x = -3$. Dividing both sides by -4, we get

$$x = \frac{3}{4}.$$

7. Solving for x, we first subtract 5 from each side

$-2x \geq 11 - 5$. Upon simplifying the RHS, we get

$-2x \geq 6$. Dividing both sides by -2

$x \leq -3$

We switch the inequality because we divide by a negative number. In interval notation it is $(-\infty, -3]$.

MAC1140 Study Guide Solutions

1. We want to solve

$$9x^2 - 6x - 4 = 0$$

Notice that this quadratic equation is already in standard form: $ax^2 + bx + c = 0$ and we can identify a, b, and c:

$$a = 9,\ b = -6,\ c = -4$$

Recalling the quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

We will substitute for a, b, and c:

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(9)(-4)}}{2(9)}$$

Upon simplifying, we have,

$$x = \frac{6 \pm \sqrt{36 + 144}}{18} = \frac{6 \pm \sqrt{180}}{18} = \frac{6 \pm \sqrt{36 * 5}}{18} = \frac{6 \pm 6\sqrt{5}}{18} = \frac{1 \pm \sqrt{5}}{3}$$

Thus the solution set is

$$\frac{1 + \sqrt{5}}{3},\ \frac{1 - \sqrt{5}}{3}$$

2. Recall that the difference quotient is given by

$$\frac{f(x + h) - f(x)}{h}$$

In the expression above we replace $f(x + h)$ with the quantity

$$-(x + h)^2 + (x + h) - 2$$

and then subtract the function $f(x) = -x^2 + x - 2$:

$$\frac{-(x + h)^2 + (x + h) - 2 - (-x^2 + x - 2)}{h}$$

If we expand the quantity $(x + h)^2$ we obtain $x^2 + 2xh + h^2$:

$$\frac{-(x^2 + 2xh + h^2) + (x + h) - 2 - (-x^2 + x - 2)}{h}$$

Using the distributive property yields

$$\frac{-x^2 - 2xh - h^2 + x + h - 2 + x^2 - x + 2}{h}$$

We will now combine like terms

$$\frac{-2xh - h^2 + h}{h}$$

Upon dividing both the numerator and the denominator by h we obtain

$$-2x - h + 1.$$

3. There is a direct variation problem, which means that the equation we will be using is

$$C = kdl$$

where C is the cost of the sewer pipe, k is the constant variation, d is the diameter of the pipe, and l is the length of the pipe.

We will first use the information in the problem to find the constant of variation

$$\$18.60 = k(6)(20)$$

Solving for k yields $k = 0.155$.
We now substitute for k:

$$C = 0.155dl$$

So, the cost of a 16-foot pipe with a diameter of 8 inches is

$$C = 0.155(8)(16) = 19.84$$

The cost of the pipe is \$19.84.

4. Recall that the vertex form of a quadratic function is

$$f(x) = a(x - h)^2 + k,$$

where the vertex is given by (h, k). In the given problem $a = 3$, $b = -12$ and $c = 1$. The value of h is computed as demonstrated below.

$$h = -\frac{b}{2a}$$

$$= -\frac{-12}{2 * 3}, \text{ Simplifying the numerator and denominator, we get}$$

$$= \frac{12}{6}, \text{ Simplifying the fraction, we get}$$

$$= 2.$$

The value of k is computed as demonstrated below.

$$k = \frac{4ac - b^2}{4ac}$$

$$= \frac{(4 * 3 * 1) - (-12)^2}{4 * 3}, \text{ Simplifying the numerator and denominator, we get}$$

$$= \frac{12 - 144}{12}, \text{ Simplifying the numerator again, we get}$$

$$= \frac{-132}{12}, \text{ Simplifying the fraction, we get}$$

$$= -11.$$

Thus the vertex is (2, -11)

5. Let x be the smallest of the three numbers and let z be the largest of the three numbers and let y be the middle number. Since the sum of the three numbers is 40, we have the equation:

$$x + y + z = 40$$

Since the difference between the largest and smallest is 12, we have the equation

$$z - x = 12$$

Since the largest is equal to the sum of the two smaller numbers, we have the equation

$$z = x + y$$

Thus we have the system

$$\begin{aligned} x + y + z &= 40 \\ z - x &= 12 \\ z &= x + y \end{aligned}$$

Substituting $x + y = z$ in the first equation, we get $2z = 40$. Dividing both sides by 2, we get $z = 20$. Substituting $z = 20$, in the second equation to obtain the value of x:

$20 - x = 12$, Subtracting 20 on both sides, we get
$-x = -8$, Dividing both sides of the equation by -1, we get
$x = 8$

Substituting $z = 20$ and $x = 8$, to obtain the value of y:

$20 = 8 + y$, Subtracting 8 on both sides
$12 = y$.

Thus, $x = 8$, $y = 12$, and $z = 20$. The three numbers are 8, 12, and 20.

MGF2130 & MGF2106 Study Guide Solutions

1. We first rewrite $\frac{3}{4}$ and $5\frac{5}{6}$ so they have a common denominator. We will use the LCD, 12.

$$\frac{3}{4} = \frac{9}{12}$$

$$5\frac{5}{6} = 5\frac{10}{12}$$

Now we can do the addition.

$$\frac{9}{12} + 5\frac{10}{12} = 5\frac{19}{12}$$

Then we rename this answer.

$$5\frac{19}{12} = 5 + \frac{19}{12} = 5 + 1\frac{7}{12} = 6\frac{7}{12}$$

2. We can solve the equation as follows:

$2(v + 5) = -2(8v - 3) + 4v$, Using the distributive property to remove parentheses

$2v + 10 = -16v + 6 + 4v$, Combining like terms on each side

$2v + 10 = -12v + 6$, Subtracting 10 from each side

$2v = -12v - 4$, Adding $12v$ to each side

$14v = -4$, Dividing each side by 14

$v = -\frac{4}{14}$, Upon simplification, we get

$v = -\frac{2}{7}$.

3. Substituting $3y + 19 = x$ in $-5x + 3y = -35$ we get

$$-5(3y + 19) + 3y = -35, \text{ Distributing -5 on the LHS, we get}$$
$$-15y - 95 + 3y = -35, \text{ Combining the like terms on the LHS, we get}$$
$$-12y - 95 = -35, \text{ Subtracting 95 on both sides, we get}$$
$$-12y = 60, \text{ Dividing both sides by -5, we get}$$
$$y = -5$$

To find x, we substitute $y = -5$ in $3y + 19 = x$ and get

$$3(-5) + 19 = x, \text{ Multiplying 3 with -5, we get}$$
$$-15 + 19 = x, \text{ Simplifying the terms on RHS, we get}$$
$$4 = x$$

4. The sales tax is 9.75% of \$636.99, and we calculate it as follows. First, we change 9.75% to a decimal by dividing 9.75 by 100.

$$9.75\% = \frac{9.75}{100} = 0.0975$$

Then, we multiply

$$9.75\% \text{ of } 636.99 = 0.0975 * 636.99$$
$$= 62.106525$$

Rounding to the nearest cent, we get that the sales tax is \$62.11. To find the total cost, we add the listed price and the sales tax.

$$636.992 + 62.11 = 699.10.$$

So, the total cost is \$699.10.

5. The volume V of a rectangular prism with length l, width w and height h is computed as follows.

$$V = l * w * h$$

In this problem, l = 5m, w = 5m, and h = 5m. So we get the following.

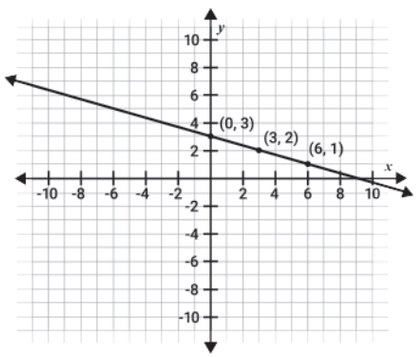
$V = 5 * 5 * 5 = 125\text{m}^3$. For volume, the unit must be a 3rd power.

6. Consider the equation $y = -\frac{1}{3}x + 3$.

a. We are going to substitute the values of x and y into the equation. For (3, 2) we have $-\frac{1}{3} * 3 + 3 = -1 + 3 = 2$, so that makes the equation true.

b. We need at least two points to graph the line. First, we choose some x values. Then, we evaluate $y = -\frac{1}{3}x + 3$ for each of the x values.

x	$y = -\frac{1}{3}x + 3$	(x, y)
0	$y = -\frac{1}{3} * 0 + 3 = 3$	(0, 3)
3	$y = -\frac{1}{3} * 3 + 3 = 2$	(3, 2)
6	$y = -\frac{1}{3} * 6 + 3 = 1$	(6, 1)



6. Substituting $x = 2$ and $y = -4\frac{1}{2} = -\frac{9}{2}$ in the above equation, we get

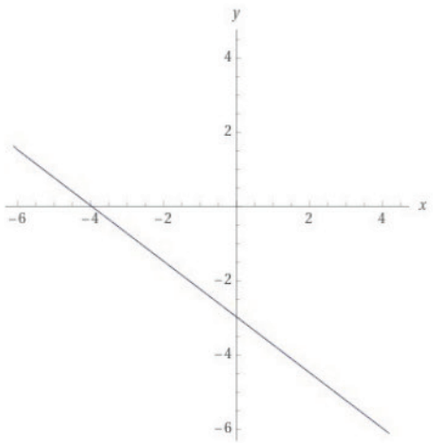
$$3(2) + 2(-\tfrac{9}{2}) = 6 - 18 = -12.$$

Hence, $(2, -4\frac{1}{2})$ is a solution to the equation.

7. To find x-intercept, substitute $y = 0$. This gives $x = -4$. Hence, the x-intercept is $(-4, 0)$.

To find y-intercept, substitute $x = 0$. This gives $y = -3$. Hence, the y-intercept is $(0, -3)$.

Hence, the graph of the equation is



4. Let the original price of the computer be c dollars.

An 8% decrease in the price is $-0.08c$.

The price of the computer after applying the discount is

$$c - 0.08c = 2162$$

in math, Simplifying the left hand side, we get

$$0.92c = 2162.$$

Dividing both sides by 0.92, we get

$$c = \$2350.$$

So, the original price of this computer is \$2350.

5. Let the base of the triangle be b cm

Let the height of the triangle be h cm.

Area of the triangle is $\frac{1}{2} \times b \times h$. Substituting $b = 11$ and $h = 6$, we get

Area $= \frac{1}{2} \times 11 \times 6 = 33 cm^2$.

6. Substituting $x = 2$ and $y = -4\frac{1}{2} = -\frac{9}{2}$ in the above equation, we get

$3(2) + 2(-\frac{9}{2}) = 6 - 18 = -12.$

Hence, $(2, -4\frac{1}{2})$ is a solution to the equation.

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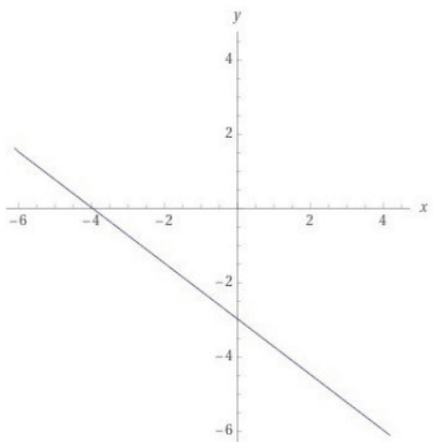

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