

# 2019 AIMS COURSE CATALOG

## 3D PRINTING AND DESIGN

In this course, students will model the workflow of industrial design and progress from 3D Computer Aided Design software to a 3D physical model. Models will be created using a 3D printer. Students will get to keep their model. Students will need access to a valid email address.

Instructor: Phillip Z. Brewer

Offered: Week 1, Week 2, and Week 3

Period: C

Room: Library

## ACT PREP

High school students who are seeking admission to colleges and universities upon high school graduation take the ACT test. You can prepare with a professional tutor in class! We practice the sections and learn strategies. A lot of student's scores have increased after taking my class.

Instructor: Kevin Dolbeare

Offered: Week 1, Week 2, and Week 3

Period: A

Room: Media Room

## A SHERLOCK MURDER MYSTERY

Interested in learning about Sherlock Holmes while playing murder mystery games in class? Learn about the origins of this famous detective, delve into Sir Arthur Conan Doyle's original stories, watch modern film adaptations, and solve mysteries at AIMS. Find out if you are the villain, the detective, or the victim in this story.

Instructor: Doris Frye

Offered: Week 1, Week 2, and Week 3

Period: C

Room: H205

## ACTION! FOR MOVIE LOVERS

Like movies? This is the course for you. In this class, students will learn about movie history and research behind the scenes of some of your favorite movies. Each day, students will research different genres and write, produce, and direct their own short films. The best movie proposal will win a prize at the end of the exciting week. Will you make the cut?

Instructor: Rodney Adams

Offered: Week 1, Week 2, and Week 3

Period: A

Room: H103

## AIMS GOT TALENT

Do you sing, play an instrument, dance, do stand-up, rap or freestyle? If you said yes to any of these or if you have another talent you would like to share, this course gives students the opportunity to participate in a friendly competition. Students (contestants) plan, rehearse, and collaborate with each

other, perfecting their acts and talents for an end of the course "talent show" that will crown the most talented AIMS student.

Instructor: Austin Toney

Offered: Week 1, Week 2, and Week 3

Period: A

Room: H201

#### ALGEBRA REVIEW

Review Algebra I concepts, such as solving equations and inequalities, order of operations, properties of exponents, and linear functions, through the use of interactive activities and fun math games.

Instructor: Meoshe Williams

Offered: Week 1, Week 2, and Week 3

Period: A

Room: S305

#### ALL ABOUT ANIMALS (TWO-PERIOD CLASS)

Do you love learning about animals? Do you have an interest to work in the field of zoology one day? Perhaps you want to be a veterinarian or even a wildlife biologist. If so, this course is for you. Students will explore the different classes of organisms within the animal kingdom, have hands-on experience dissecting organisms, including invertebrate and vertebrate species, handle preserved specimens, and explore how these organisms compare to one another anatomically. Learn about animal behavior, animal adaptations, and their interactions in the environment. Students will observe live animals in the classroom, visit an animal rehabilitation center, and take a trip to a local animal clinic to have a behind-the-scenes tour and speak to the veterinarians.

Instructor: Heather Normand

Offered: Week 1, Week 2, and Week 3

Period: A and B

Room: S405

#### APPS FOR ANDROID DEVICES

Android devices account for an ever-growing percentage of the smartphone and tablet market. In this course, students will see how to use an IDE to create their own apps that can run on these devices. Students will use an emulator of an Android device that will run on Windows, which allows students to view the apps to explore the basic programming principles behind the app.

Instructor: Keith Lynn

Offered: Week 1, Week 2, and Week 3

Period: A

Room: S206

#### ARCHAEOLOGY

Do you want to learn about vampires, vikings, and lost cities? If so, then this class is for you! Come learn about the history, legends, and lost empires around the world and see what real archaeologists do and how discoveries are made. This class also includes a field trip to the University of South Alabama Archaeology Museum.

Instructor: Aaron Rowbotham

Offered: Week 1, Week 2, and Week 3

Period: B

Room: H103

### ART AROUND THE WORLD

Take a journey around the world and explore art from various cultures. Class experiences will include learning music, practicing cultural dance forms, viewing films, discovering visual artwork, and tasting culinary treats from around the world. Don't miss this awesome opportunity to explore amazing art from across the globe.

Instructor: Anna White

Offered: Week 1, Week 2, and Week 3

Period: C

Room: Auditorium

### ARTS AND CRAFTS

Let's get creative! Come join in on the fun and be crafty. Participate in canvas activities, bowl making, and much more. Students are asked to wear appropriate clothing as the coursework can get messy.

Instructor: Joyce Boatman

Offered: Week 1, Week 2, and Week 3

Period: B

Room: Coffee House

### ART SECRETS OF THE RENAISSANCE MASTERS

Learn the surprisingly simple geometric techniques used by master artists and artisans throughout history to produce beautiful drawings that require no special math or art background to produce! Projects include Celtic Knotwork, Moroccan tiling patterns, 2- and 3-point Perspective drawings, and Tessellations. Instructor holds degrees in both mathematics and the fine arts, as well as a teaching certificate in geometric design.

Instructor: Sarah Brewer

Offered: Week 1, Week 2, and Week 3

Period: A

Room: S201

### ARCHERY FUNDAMENTALS

Get ready to channel your inner Robin Hood! You will learn the fundamentals of archery (no prior experience needed) using a compound bow and bullseye targets. You'll learn proper posture and bow handling. We will all review tips on how to increase accuracy and consistency. There will also be a mini tournament! Class notes: Closed toe shoes must be worn. Safety is our primary concern. One safety violation or repeated inability to follow instructions will result in removal from the class.

Instructor: Candace Howard

Offered: Week 1, Week 2, and Week 3

Period: C

Room: Gymnasium

### BASIC ALGEBRA WITH COMPUTER

Although seemingly scary to some, Algebra is a mathematical language that can describe patterns. This introductory course will help students achieve a better understanding of algebraic concepts through the use of software, like Sketchpad and Autograph, to explain algebraic equations and their solutions.

Instructor: Nasrullah Aziz

Offered: Week 1 and Week 2

Period: B

Room: S203

#### BASIC CHEMISTRY OF THE FOOD WE EAT

Ever wondered why you can't un-boil an egg? Or how those holes get into your bread? Or what that gross blue stuff is that your parents put on salad? Students in this class will get to discover the secret world of food by learning how different foods taste, smell, and feed your brain. Topics in Biology and Chemistry will be included in a fun, interactive environment.

Instructor: Dr. James Njenge're

Offered: Week 1, Week 2, and Week 3

Period: C

Room: S302

#### BASIC MATH CONCEPTS

Students in this course will review middle school math concepts, such as integers, operations, fractions, decimals, percents, ratios and proportions, through a combination of hands-on learning activities and classroom games.

Instructor: Meoshe Williams

Offered: Week 1, Week 2, and Week 3

Period: B

Room: S305

#### BASIC GEOMETRY WITH COMPUTER

Students will analyze congruent triangles using software like Sketchpad or Autograph and review the following concepts: right triangles, similarity in right triangles, the Pythagorean Theorem, coordinate geometry, the distance formula, the midpoint formula, and graph linear equations. Students will also learn to organize coordinate geometry proofs.

Instructor: Nasrullah Aziz

Offered: Week 1 and Week 2

Period: A

Room: S203

#### BASKETBALL TRAINING

This course includes high-energy sessions that focus on the proper mechanics, techniques, and skill development for basketball: dribbling, passing, shooting, defense, and teamwork. Students will perform individual and team drills that incorporate the main components of foundation, along with understanding the basketball rules to be a successful basketball player. Each session will conclude with water basketball in the campus swimming pool. A swimsuit & towel will be needed.

Instructor: Bill Brouillet

Offered: Week 1, Week 2, and Week 3

Period: B

Room: Gym

#### BEGINNING/INTERMEDIATE BATON

Students will learn manipulative skills that can be used for majorette or flag corps positions for marching bands. Skills such as vertical, horizontal, big swings, two hand spin and thumb roll flips will be taught. Proper footwork will be taught for each skill learned. Students will also learn how to put their newly-learned skills to music.

Instructor: Susan Harrell

Offered: Week 1 and Week 2

Period: A or B

Room: West Campus

#### BEGINNING PICKLEBALL

Learn the basic skill of pickleball! Students will learn drinking, forehand, backhand, volleys, lobs and serving. Students will also learn how to keep score and play in a round-robin tournament at the end of the week!

Instructor: Dawn Brouillet

Offered: Week 1, Week 2, and Week 3

Period: C

Room: Tennis Courts

#### BEGINNING TENNIS

Students will develop the basic skills necessary to play the game of tennis. Basic skills taught will include the forehand, backhand, volleys, lobs, the serve, and how to keep score. At the conclusion of the week, students will use their newly acquired skills while participating in a round-robin tournament.

Instructor: Dawn Brouillet

Offered: Week 1, Week 2, and Week 3

Period: A or B

Room: Tennis Courts

#### BIGGER, FASTER, STRONGER

This course is designed to improve overall athletic performance by emphasizing the achievement of any athlete at any level of competition. Each day, there will be an alternation of agility drills combined with strength training and plyometric with speed training specifically designed to improve athletic ability.

Instructor: Steve Normand

Offered: Week 1, Week 2, and Week 3

Period: B

Room: B130

#### BIRD IS THE WORD

Let's go find some birds! This will be a field class where students get to go outside and spend every morning locating and identifying birds. While birding, we will have discussions about bird behavior

and bird anatomy, which will help the students in their identifications. There will be field trips to local parks, marshes, and beaches. Students will also learn how to keep a notebook documenting the species they have identified.

Instructor: Apryle Panyi

Offered: Week 1 and Week 2

Period: A

Room: S301

#### CHEMISTRY AND CRAFTS OF TIE DYE

Tie-dye, long before the 70's, was known as Shibori, a Japanese term that encompasses a wide variety of resist-dyeing techniques. These techniques produce random patterns that are either geometric, loose, free-flowing, or combinations of everything in between. Students will learn the fundamentals of a different crafting techniques and make a variety of handmade projects, many of which will use tie dye applications.

Instructor: Joyce Boatman

Offered: Week 1, Week 2, and Week 3

Period: C

Room: S102

#### CODE A MICRO:BIT

Learn how to program a micro:bit, a really cool mini board computer that has LED lights, a radio and Bluetooth antenna, a compass, a temperature sensor, and an accelerometer plus pins for attaching external sensors. Use your imagination to create games and experiments or make a banana beatbox. We'll start with simple projects to display text and icons. Learn to write programs to keep score, play a song, or send secret messages to a friend's micro:bit. You'll be amazed what you can do and control by the end of the week!

Instructor: Deborah Gray

Offered: Week 1 and Week 2

Period: B

Room: S206

#### CODES AND CIPHERS

Learn about the basic theories of cryptography, or the science of secure communications. Students will learn about the history of cryptography and cryptanalysis, early cryptographic systems, codes and ciphers, single-key cryptography, the Caesar Cipher, statistics and general ciphers, substitution, multiple and transposition ciphers, and product, block, stream, and modern-day ciphers.

Instructor: Natalya Prokhorova

Offered: Week 1 and Week 2

Period: B

Room: S205

#### COWBOY CULTURE: WESTERN MOVIE ORIGINS OF RED DEAD REDEMPTION

If you like Rockstar's Red Dead Redemption franchise, or you just like western movies and stories, this is the course for you! We will talk history and politics of the American West, taking an in-depth look at

moments such as the gunfight at the OK Corral. Students will come away with a better understanding of how pop culture takes on the Wild West!

Instructor: Mitch Frye

Offered: Week 3

Period: A

Room: A101

### CREATIVE PHOTOSHOP

Adobe Photoshop is a graphics editing program developed and published by Adobe Systems Incorporated. Students will learn about the creativity within mathematically-correct exposed digital shots. They will consider different approaches to beautify and modify regular shots by adding different effects and layers.

Instructor: Nasrullah Aziz

Offered: Week 1 and Week 2

Period: C

Room: S206

### CROSSFIT

CrossFit is a workout program centered on performing "functional movements that are constantly varied at high intensity." Students will take the CrossFit concept and apply it to a core strength and conditioning program. The program is designed to develop the whole body through various traditional and nontraditional workouts and exercises. This program will not be a specialized fitness program but a deliberate attempt to optimize physical fitness in each of the fitness domains. This program is meant to be developed and suitable for all ages and physical conditions.

Instructor: Steve Normand

Offered: Week 1, Week 2, and Week 3

Period: C

Room: B130

### CSI: FUN FORENSICS

This class is designed for students who love forensics and want to learn the science behind the Hollywood hype of CSI. Students will work in teams to collect and analyze evidence from a mock crime scene. Activities include analyzing blood spatter, fingerprinting, DNA extraction, hair and fiber microscopy, crime scene documentation, canine assistance, and much more.

Instructor: Heather Normand

Offered: Week 1, Week 2, and Week 3

Period: C

Room: S405

### DEBATE

When we feel strongly about something, it can be difficult to calmly argue with someone on the topic. However, staying calm and rational can be the best skill in these instances. Making sure to structure your argument in a logical way is a necessary skill. Students will discuss what debate is, common forms of debate, and learn how to effectively debate with others. Debate is a great way to improve your thinking and hold conversations that actually help change people's minds.

Instructor: Daniel Commander  
Offered: Week 1, Week 2, and Week 3  
Period: C  
Room: B126

#### DIVISION ALGORITHM AND REMAINDER ARITHMETIC

The theory of numbers has always occupied a unique position in the world of mathematics. Nearly every century since classical antiquity has witnessed new and fascinating discoveries relating to the properties of numbers. In this class, we will consider some topics from the Elementary Number Theory such as Divisibility Theory In the integers, Primes and their Distribution, The Theory of Congruences, Fermat's theorem, and Number-Theoretic Functions.

Instructor: Natalya Prokhorova  
Offered: Week 1 and Week 2  
Period: C  
Room: S205

#### DRONES AND RACECARS

Drones are becoming increasingly popular, not just for war and military purposes, but also for everything from wildlife and atmospheric research to disaster relief and sports photography. We will learn how to go through a pre-flight checklist, learn the controls of a drone, control a quadcopter flight pattern, and even use advanced techniques for an obstacle course. Think driving an RC race car is easy? Learn how to navigate through tough terrain through competition and team activities!

Instructor: Grey Gaillard  
Offered: Week 2 and Week 3  
Period: A or B  
Room: West Campus

#### ENVIRONMENTAL DISASTERS

Accidents happen, oftentimes with widespread and long term repercussions, such as Deepwater Horizon, Exxon Valdez, Fukushima Daiichi, and Chernobyl incidents. Students will learn about several types of environmental disasters, historical examples of those types, and engage in laboratory activities to further explore various aspects of those incidents such as environmental conditions, clean up methods, etc. We will also have a competition where groups of students will create their own, made up environmental "accident" and have to come up with a plan to handle the aftermath.

Instructor: Apryle Panyi  
Offered: Week 1 and Week 2  
Period: C  
Room: S301

#### EVOLUTION OF FOOTBALL

Do you love football or at least would like to know more about the game that so many people love? During this class students will study the evolution of football from the first game in 1869 to the modern game that so many people watch and follow today. We will take a look at every generation from the invention of the forward pass in 1906 to run pass option offense that is so popular today. This course will allow you to watch the game you love from a completely different viewpoint. Each student

will also have an opportunity to learn how to evaluate film and game plan like you were going to coach your own team.

Instructor: Ken Boatman

Offered: Week 3

Period: C

Room: S203

### FLAG FOOTBALL

Enjoy learning the fundamentals of football by playing flag football. Sharpen your skills in passing, receiving, and defense in a fun, competitive environment that focuses on sportsmanship. For a change of pace, students will have some time for 'Ultimate Frisbee.' Students will also use the shallow end of the campus pool near the end of class to cool off and recover from football games. Please bring a swimsuit and towel. This class is open to boys and girls.

Instructor: Bill Brouillet

Offered: Week 1, Week 2, and Week 3

Period: A

Room: West Campus

### GAME DESIGN WITH UNITY 3D

Learn how to create video games with the industry-standard Unity 3D Game Development Engine. Students will learn to create gaming and simulation environments for multiple platforms (PC, MAC, and Android). Learn to apply custom Java-based script, create CAD-generated game objects, and develop new virtual worlds. Students will need access to a valid email address.

Instructor: Phillip Z. Brewer

Offered: Week 1, Week 2, and Week 3

Period: A or B

Room: S202

### GAME ON!

Students will learn how to use Arduino boards and the basics of circuits, so that they can create their own handheld devices to hold a variety of retro games such as Pong, Tetris, Breakout, and Flappy Bird. On the fly or on the go, their entertainment systems will provide endless amounts of fun!

Instructors: Kevin Xiao and Nathan Amos

Offered: Week 1, Week 2, and Week 3

Period: C

Room: S106

### GENDER AND DISNEY

We all know the classic Disney films where the prince saves the princess. But, what happens in newer versions? In this class, students will look at how more modern Disney films, like Tangled, Frozen, and Brave create different types of princes and princesses. Students will watch and discuss various Disney films. We will also engage in a variety of activities ranging from creating video game versions of princesses to recreating classic Disney painting techniques in class.

Instructor: Doris Frye

Offered: Week 1, Week 2 and Week 3

Period: B  
Room: H205

### GEOLOGY OF MINECRAFT

Can you really make a suit of diamond armor? Can obsidian stop TNT? How does the real world compare to the virtual world created by Mojang's programmers? Students will compare and contrast both the real and virtual worlds both in class and with three field trips. So bring your pickaxe (just kidding, all tools provided) and your best Steve impersonation for a great time.

Instructor: Kevin Dolbeare  
Offered: Week 1, Week 2, and Week 3  
Period: B  
Room: S401

### GHOSTBUSTERS OF MOBILE

The Ghostbusters films and cartoons are funny, spooky, and smart. In this course, students will screen the franchise's movies and TV shows while studying the literature, science, and comedy that inspired them. This includes a critical look into the technological tools that "real" ghost hunters use in their trade. Students will also learn the history of various "haunted" sites around Mobile, Ala.

Instructor: Mitch Frye  
Offered: Week 3  
Period: C  
Room: B208

### HANDS-ON GEOMETRY

Students in this course will create tetrahedron kites (that actually fly), Pythagorean spirals, and robots from 3D figures. Haven't taken Geometry yet? Don't worry! Students will learn the Geometry concepts needed to complete projects.

Instructor: Meoshe Williams  
Offered: Week 1, Week 2, and Week 3  
Period: C  
Room: S305

### HOGWARTS LETTER!

Looking for wizards stuck in a Muggle world? If accepted, students will be sorted and receive their very own wand. They will learn about and make different potions and spells, go over transfiguration, and learn about the care of magical creatures. The great game of Quidditch will be played along with the Sorcerer's Stone Challenge. Will your house win?

Instructor: Cameron Hall  
Offered: Week 1, Week 2, and Week 3  
Period: A  
Room: B130

### I MEAN BUSINESS!

Students will learn the different sectors of a company and see what it takes to run a business. Students will learn about human resources, marketing, finance, and operations and engage in activities that

surround these topics. Students will then use what they learn to create a business proposal. The student with the best business proposal will receive a prize!

Instructor: Rodney Adams

Offered: Week 1, Week 2, and Week 3

Period: B

Room: H201

#### IMPROV!

This introductory course to improv is specifically designed for students with no prior experience in acting. In this course, students will participate in "Whose Line is it, Anyway?" style exercises to become more spontaneous and receptive to new ideas in a playful, supportive atmosphere. This course will help students become more comfortable and confident with themselves. Sometimes silly, sometimes outrageous, improv training inspires students to adapt to the unexpected and think outside of the box.

Instructor: Lorenzo Gapud

Offered: Week 1, Week 2, and Week 3

Period: A

Room: H207

#### INTERMEDIATE/ADVANCED ROCKETRY

Interested in Rockets? How about designing and building a rocket from scratch? If you answered yes to these questions, this course is for you! In this course, a National and International Rocketry champion instructor will cover the basics, such as designing and building a model rocket from scratch. The week will conclude with launching rockets we've built into the sky! This course will also cover launch protocols to ensure launch safety and we will discuss National Association of Rocketry (NAR) certification and information about NAR Junior Level I certification. And, if time permits, we will launch a high power rocket!! Class Notes: Students must be in 7th grade or higher; 1st day of class will be instructional lab.

Instructor: Cady Studdard

Offered: Week 1, Week 2, and Week 3

Period: B

Room: S102

#### INTRODUCTION TO GEOGRAPHY: IN AND AROUND THE WORLD

Our world is full of diversity and different cultures. In this course, you will not only learn about the different continents and countries, but those who inhabit them and why! See the different landmarks, landforms, and wonders of the world using Google Earth. Why not learn your birthday coordinates too?!

Instructor: Aaron Rowbotham

Offered: Week 1, Week 2, Week 3

Period: C

Room: Media Room

#### INTRODUCTION TO METEOROLOGY

Are you fascinated by weather? Have you ever wondered how it all works? If so, this is the course for you! Students will explore the mechanisms underlying weather through interactive experiments and hands-on activities. By the end of the course, students will be able to identify such parameters as temperature, wind, humidity, and cloud type while analyzing how each parameter connects to local and regional weather. This course includes a visit to the Coastal Weather Research Center at the University of South Alabama, where students will tour the facility and interact with trained meteorologists.

Instructor: Chase Krebs

Offered: Week 1, Week 2, and Week 3

Period: A

Room: H305

#### JEDI ACADEMY: THE PHILOSOPHY AND ARTISTRY OF STAR WARS

In the AIMS Jedi Academy class, "There is no ignorance; there is knowledge:" Students will examine the philosophies and films George Lucas drew from in creating the Star Wars franchise. "There is no passion; there is serenity:" Students will craft their own foam lightsaber and resist the urge to bonk their fellow classmates in the head. "There is no death; there is the Force:" Students will study and revive the classic expanded universe content that Lucas and Disney have sought to cut from the canon. In short, students will learn about Star Wars while applying the analytical processes of the humanities to appreciate its depth.

Instructor: Mitch Frye

Offered: Week 1 and Week 2

Period: A

Room: B208

#### JOURNALISM

News reporting is an extremely important part of society. In our technological world, the way we read the news is always changing. For example, a large part of the population gets all of their news from social media. Despite all of this, the basics of journalism have not changed. In this class, students will look at the changing world of news and discuss how to report and research it. In addition, students will work to improve writing skills and learning how our information is presented.

Instructor: Daniel Commander

Offered: Week 1, Week 2, and Week 3

Period: A

Room: B126

#### KING AUTHOR AT ASMS

Join us to learn about the origins of King Arthur and Medieval England. In this class, we will mash together history, literature and a dash of science as we explore the world of King Arthur. Learn about knights, medieval food, culture and medicine. We will watch film adaptations, play games, design your own coat of arms and even build mini-catapults!

Instructor: Doris Frye

Offered: Week 1

Period: A

Room: H205

## LABS OF DOOM

The evil mastermind with a plan to rule or destroy the world is a common theme in literature. Is there real science in the middle of those monologues? We will discuss the possibilities of science gone wrong, from Dr. Frankenstein to the Joker. We will mimic their most dastardly campaigns as best we can in our very own lab of doom! Note: Labs of Doom will be done under safe conditions, so no budding lab assistants will lose an eye or grow a hunchback. Please wear closed toe shoes each day (no flip flops allowed).

Instructor: Kevin Dolbeare

Offered: Week 1, Week 2, and Week 3

Period: C

Room: Both S401 and S402

## LAND, SEA, AND AIR: BASIC NAVIGATION, BUOYANCY, AND ENERGY OF PROPULSION

Learn how boats float, planes fly, steam engines work, how to navigate using dead reckoning, and how alternative energy resources can be used to propel automobiles. Not only will we learn the science behind various modes of travel, but we will design, build, and test working models: boats that float (or not!), planes that fly, hot air balloons that float, rocket cars propelled by air, and we will replicate a steam engine designed in 50 AD! We will also navigate a mystery path around campus using dead reckoning and vector navigation.

Instructor: Glen M. Mutchnick

Offered: Week 1, Week 2, and Week 3

Period: C

Room: S101

## LEADERSHIP

This course will actively engage students in the acquisition of information about historical and contemporary theories, concepts, and issues associated with leadership. Students will be exposed to the nature of leadership through presentation of objective material and fun group activities.

Instructor: Rodney Adams

Offered: Week 1, Week 2, and Week 3

Period: C

Room: H201

## LIGHT METALS AND VITREOUS ENAMELING (TWO-PERIOD CLASS)

This class will introduce basic elements of metalworking and enameling (fusing glass to metals or a substrate). Students will learn sawing, piercing, metal shaping, soldering, annealing, cloisonné, and how to use a kiln and soldering torch. You will make various metal forms and enamel them. The techniques learned in this class can be used for making jewelry or metal sculpture.

Instructor: Orren Kickliter

Offered: Week 1, Week 2, and Week 3

Periods: A and B

Room: Art Studio

## MARINE BIOLOGY (TWO-PERIOD CLASS)

More than 71 percent of the earth is covered by ocean. What exists in these endless extensions of waters? Oceans are teeming with life. This course will introduce you to the living things that inhabit oceans. You will also get a chance to see and handle these neighbors of ours and study their behavior. Bring your swimsuit for a field trip.

Instructor: Dr. James Njenge're

Offered: Week 1, Week 2, and Week 3

Periods: A and B

Room: S302

### MATH MAGIC

There's more to math than numbers. Explore interesting topics in math like imaginary numbers, fractal geometry, sums of infinitely many numbers, and modular arithmetic. In this course, campers will see that math is much deeper than the textbook they are using in school.

Instructor: Mike Fletcher

Offered: Week 1, Week 2, and Week 3

Period: A and C

Room: S205 (A) and S203 (C)

### MOBILE HISTORY

This course will explore certain aspects of Mobile's history by visiting selected historical landmarks and museums. Students will also produce a presentation based upon what they learned about the sites, including their own research and analysis. Field trips include the Mobile Museum of History, Fort Conde, The Oakleigh House, and the Battleship U.S.S. Alabama.

Instructor: Derek V. Barry

Offered: Week 1, Week 2, and Week 3

Period: C

Room: A101

### ON BROADWAY!

Learn what it takes to be a star on Broadway. Become the ultimate "triple threat" as you sing, dance, and act your way through scenes in a Broadway show. From "Mary Poppins" to "Rock of Ages," students will explore a variety of genres in the theater world. Each week will end with a small performance of the selected scenes.

Instructor: Anna White

Offered: Week 1, Week 2, and Week 3

Period: B

Room: Auditorium

### ONCE UPON A TIME: A MODERN TWIST ON CLASSIC FAIRY TALES

Prince Charming, evil witches, and fairy godmothers are everywhere in pop culture, from the television shows "Once Upon a Time" and "Grimm" to films, video games, and music. In this course, we will explore some of the lesser-known classic fairy tales and consider how modern world would interpret them. In class, aside from discussing the original fairy tales, students will engage in a variety of activities. We will look at their place in our modern world, invent our own adaptations, and finally create twisted tales of our own, taking the original fairy tales and creating new stories.

Instructor: Doris Frye  
Offered: Week 2 and Week 3  
Period: A  
Room: H205

#### ORIGAMI: THE ARTFUL MATHEMATICS OF PAPER FOLDING

Origami is an engaging and beautiful, yet calming art form through which we can learn principles of mathematics by creasing paper rather than writing out calculations. Students will create modular origami polyhedra, deconstruct origami animals to reveal the crease patterns and the underlying mathematical principles governing them, and learn how to tile the plane by creating origami tessellations. No prior folding experience necessary, but experienced folders are welcome and all students will be given projects that challenge them at their own level. Students are welcome to repeat this course or even enroll in two sessions in the same week.

Instructor: Sarah Brewer  
Offered: Week 1, Week 2, and Week 3  
Periods: B or C  
Room: S201

#### PAINTING

This class is for beginners, intermediate, and advanced students who want to study painting. We will perform quick observational drawing exercises and discuss traditional painting techniques followed by modern, Post-Impressionist and Expressionist, and color theory and technique. Please wear appropriate clothing.

Instructor: Orren Kickliter  
Offered: Week 1, Week 2, and Week 3  
Periods: C  
Room: Art Studio

#### PARASITES INSIDE OF YOU! (AND OTHER ANIMALS)

Did you know that most living creatures have parasites inside of them? Yes, that means you could too! Students will learn about the vast diversity of parasites that exist and why humans in certain areas of the world have essentially eradicated all parasites from themselves. The course will focus on local parasite species to conduct laboratory dissections of various animals such as fish, frogs, turtles, and birds to see live parasites! Students will also use microscopes to look at preserved parasites to get a better understanding of one of the most successful animal life history strategies on Earth.

Instructor: Apryle Panyi  
Offered: Week 1 and Week 2  
Period: B  
Room: S301

#### PITCH IMPERFECT

Do you love the music from Pitch Perfect and want to learn how it is done? Then this is the class for you! Discover your own process of making a capella music, while making new friends! With the instructors help, 4 to 16 aspiring singers will choose two songs they want to make their own over the course of the week. Instruction in basic music theory, vocal technique, beatboxing and showmanship

will give you the tools to make your own musical arrangements and a professional quality performance at the end of the week!

Instructor: Lorenzo Gapud

Offered: Week 1, Week 2, and Week 3

Period: C

Room: Bandroom

### PHUN PHYSICS

In this course, students will examine various concepts in Physics using a hands-on application approach in awesome laboratory experiences; some "shocking," some "bullet-proof," some "structurally sound," and some using a "ping." All will be "PHUN!" Examples of some of the cool and high-tech laboratory experiences that students will share include the use a real-time sonar sensor that senses position vs. time data produced by the student, an interface, and a laptop-to-projector set-up with the necessary software. Will a bullet dropped to the floor hit the ground at the same time as a bullet fired horizontally from a gun? Students will also discover the answers using projectile motion models and laboratory experimentation. Students will experience 50,000 volts of static electricity using a Van de Graaff generator, design a bridge using the United States Military Academy (West Point) simulation software, and build a miniature roller coaster to test the Law of Conservation of Energy.

Instructor: Glen M. Mutchnick

Offered: Week 1, Week 2, and Week 3

Period: B

Room: S101

### POWER OF PROPER MANNERS

Have you ever wondered what the little fork on the left is for? How about the etiquette of meeting new people? Don't know what to talk about around a dinner table or what to write in a thank you note? Then, take this class! Learn how to speak, eat, and write politely.

Instructor: Candace Howard

Offered: Week 1, Week 2, and Week 3

Period: B

Room: B208

### PROGRAMMING WITH RASPBERRY PI

Students will use a Raspberry Pi computer to write programs using the Python programming language. The Raspberry Pi is a fully functional computer that is smaller than a hamburger and costs less than \$40. These little computers have lots of built-in software and have input/output ports to get sensory input from the outside world. There is a built-in support for the Python programming language. Students will become familiar with the Raspberry Pi and write introductory programs in Python. Students can bring their own Raspberry Pi computers or use one provided by the instructor. Activities include designing computer graphics, creating digital sound and created a programmable whoopee cushion!

Instructor: Mike Fletcher

Offered: Week 1, Week 2, and Week 3

Period: B

Room: Library

## PUBLIC SPEAKING

In high school, college, and almost every career, speaking in front of others will be a required skill. More than 75% of people say they are scared to give speeches. However, it does not have to be as scary as we like to imagine. In this class, students will talk about how to write a speech, practice it, and present it. This class is great for everyone, especially those who feel intimidated by public speaking or know it will play a major role in their future.

Instructor: Daniel Commander

Offered: Week 1, Week 2, and Week 3

Period: B

Room: B126

## QUIZ/SCHOLARS' BOWL PREPAREDNESS

If you want to become the star of your school's trivia team, then this class is for you. Students will learn the structure and rules of Scholars' Bowl, study all of the main trivia subjects, and compete in teams to test their skills. This course is fit both to teach those taking their first steps in trivia competitions, and to challenge advanced students. Students will train both as part of a team and individually in order to become winning scholars in this class.

Instructor: Landon Dyken and Scott Evans

Offered: Week 1, Week 2, and Week 3

Period: C

Room: H104

## ROBOTICS

This course will allow students to explore the field of robotics with hands on learning. Each student will learn the process of building and programming robots with Arduino chips. Not only will they finish with an understanding to basic robotics, but also an insight into the circuitry and electronic sensors that robotics utilizes.

Instructor: Kevin Xiao and Nathan Amos

Offered: Week 1, Week 2, and Week 3

Period: A or B

Room: S106

## ROCKETRY

Students will build various designs of model rockets in class!! During this course, students will learn about NASA and rocket design, leading up to their 'official launch date.' Before building and launching model rockets, students will perform real-time engine thrust tests and data collection of impulse and force vs. time of various engine types. Students will use a real-time force sensor to sense thrust produced by the engine, an interface, and a laptop-to-projector set-up with the necessary software. As the engine is fired and thrust is produced, data is collected and graphed on the computer in real time (thrust vs. time) and will be analyzed later by students for max./min. force and average thrust, followed by students calculating the area under the curve for Impulse (force X time).

Instructor: Glen M. Mutchnick

Offered: Week 1, Week 2, and Week 3

Period: A

Room: S101

### SCRATCH THE CAT PROGRAMMING

With Scratch, students can program their own interactive stories, games, and animations. Students will share their creations with others in the online community. Scratch helps young people learn to think creatively, reason systematically, and work collaboratively. Scratch is a project of the MIT Media Lab. It is provided free of charge.

Instructor: Grey Gaillard & Deborah Gray

Offered: Week 2 (Gaillard) and Week 3 (Gaillard)

Period: C

Room: S202

### SEVERE & HAZARDOUS WEATHER

Tornadoes, hurricanes, floods, oh my! In this course, students will explore the most dangerous and fascinating of all weather phenomena. Students will take a look at recent severe weather events and learn why those events occurred and how they can be predicted. By the end of the week, students will be able to explain why most tornadoes spin cyclonically (counterclockwise), why hurricanes are often referred to as giant heat engines, and why wildfires often produce fire whirls (fire tornados). This course includes a visit to the office of the National Weather Service of Mobile/Pensacola, where students will tour the facility and meet the meteorologists in charge of issuing watches and warnings to the public when severe weather threatens. It is recommended (though not required) that you take Introduction to Meteorology before this course.

Instructor: Chase Krebs

Offered: Week 1, Week 2, and Week 3

Period: C

Room: H305

### SO YOU THINK YOU CAN DANCE?

Learn how to dance like stars! Each day students will explore a different style of dance including hip-hop, contemporary, and more! Class will begin with a warm-up that increases flexibility and builds strength. Each week will feature different choreography and end with a performance. Whether you are new to dance or a seasoned pro, this class will both challenge and excite you!

Instructor: Anna White

Offered: Week 1, Week 2, and Week 3

Period: A

Room: Auditorium

### SPA SCIENCE

Mix it, make it, try it out, and take it home! Students will make Fizzy Bath Bombs, Sweet Lip Smackers, Shake 'Em Up Bath Salts, Yummy Face Masks, and more. Students will become clever spa scientists for the week as they learn about ingredients and how to combine them to make fun (and fabulous!) pampering goodies. Students will also get busy playing around with packaging and naming their concoctions in this spa-chemistry exploration!

Instructor: Joyce Boatman

Offered: Week 1, Week 2, and Week 3

Period: A

Room: Coffee House

#### STUDYING NATURE-FIELD BIOLOGY (TWO-PERIOD CLASS)

Learn about the forests, savannas, streams, and shores of the Alabama Gulf Coast. Students will participate in a series of field trips to various nearby habitats, with the emphasis on nature study and biological investigation. Activities will consist of hiking, kayaking, bird watching, nature study, using a map and compass, and stargazing. Students will journal their experiences using digital cameras. Some cameras are provided, but students are encouraged to bring their own.

Instructor: Scott Nelson

Offered: Week 1, Week 2, and Week 3

Periods: A and B

Room: S306

#### SUPERHEROES IN FILM

"It's a bird, it's a plane, it's...." modern film has become dominated by superheroes. From Superman to the Avengers, the X-Men to Spiderman, Batman to Wonder Woman, superheroes have come to dominate the box office! This course will look at what makes the genre so timeless and appealing. Students will delve into the complexity of the characters that time after time keep us coming back for more. The course will also look at the impact of gender attitudes on the development and popularity of female heroines. Students will develop their own "perfect superhero" and create a short story.

Instructor: Ken Robinson

Offered: Week 1, Week 2, and Week 3

Period: B

Room: B129

#### SWIMMING POOL GAMES & EXERCISE

Summer in the South is the perfect time to be in the water! However, many may not know that you can combine the enjoyment of being in a pool with getting an awesome workout. Water resistance has been a proven method to bring about body toning and strengthening in a way that puts minimal stress on the joints, which greatly reduce the risk of injury. Just as important, to participate in an aqua training class, one does not need to know how to swim. From aqua aerobics, to aqua sports-specific drills, to aqua flexing (improves flexibility, balance, and joint range of motion), this class will increase one's fitness while having fun!

Instructor: Ken Robinson

Offered: Week 1, Week 2, and Week 3

Period: C

Room: B129

#### TABLETOP GAME DESIGN WORKSHOP

Do you like playing tabletop games? Have you always wanted to make one? In Game Design Workshop, students will play and review popular board, card, and party games before setting out to create their own. They will get to choose the genre of the game they want to work on, and they will design and playtest it with their classmates. At the end of the week, students will pitch their projects to the class and try to prove that their product will be the most fun and profitable game on the market.

Instructor: Mitch Frye  
Offered: Week 1 and Week 2  
Period: C  
Room: H301

#### SOCIAL HISTORY OF ROCK & ROLL

From Elvis to Eminem, this course will trace the history of rock & roll against the cultural and social history of the US from the 1950's to the present. This course will allow students to do a presentation on their favorite artist/group and explain their musical and cultural significance.

Instructor: Derek Barry  
Offered: Week 1, Week 2, and Week 3  
Period: B  
Room: A101

#### TELL A STORY THROUGH PHOTOGRAPHS

Is story telling your forte'? Do you like photographs? If so, you need to take this course! Photojournalism is a form of journalism that employs images in order to tell a story. Photojournalism is the process of storytelling using the medium of photography as your main story telling device. In this course, the students will collect photos, edit, and present them to tell a story.

Instructor: Ishemia Etherigde  
Offered: Week 1, Week 2, and Week 3  
Period: B  
Room: Media Room

#### THE TINY WORLD AROUND US - EXPLORING INNER SPACE

Explore the exotic worlds that are all around you, but too small to see. We will use microscopes to learn about the tiny living and nonliving things that can be found in a wide variety of habitats. Activities will consist of short field trips followed by microscopic study of our collections. Students will journal, sketch, and use a digital microscope to record their findings. We'll have camera lenses to attach to your phones for macro photography.

Instructor: Scott Nelson  
Offered: Week 1, Week 2, and Week 3  
Period: C  
Room: S406

#### TRASH TO TREASURE

This class will allow students to explore techniques and styles of some of the great art masters all while helping to benefit the environment by producing arts and crafts from discarded objects. It has been said that "one man's trash, is another man's treasure," and during this class, we will prove this true by repurposing recyclable items. At the end of the week, final masterpieces will go on display in our "Trash to Treasure" exhibition. So join us as we enhance our artistic skills, as well as contribute to the health of our planet.

Instructor: Lorenzo Gapud  
Offered: Week 1, Week 2, and Week 3  
Period: C

Room: H207

### UNDERWATER ROBOT SPANISH GALLEON MISSION

Build an underwater robot – a remotely operated vehicle (ROV) -- to complete an underwater Spanish galleon mission. Students form small ROV companies to build an ROV, mission props, and tools for their mission tasks. They learn to pilot the ROV in the pool to collect sea urchins for scientific research, transplant endangered corals, and recover a cannon and shipwrecked items to identify the Spanish galleon. Other learning topics include buoyancy and ballast concepts and electrical circuits. In addition, students learn about real world ROVs designed for different missions from collecting organisms from under the polar ice cap to exploring the ocean on Jupiter's moon Europa.

Instructor: Deborah Gray

Offered: Week 2 and Week 3

Period: A

Room: Library

### VIDEO GAME APPRECIATION

Do you love video games? Of course you do. But how much do you know about what video games were like before you started playing them? In this course, students will play classic video games from the 1980s and 90s on such retro video game consoles such as the NES, Super Nintendo, Sega Master System, Sega Genesis, Turbografx 16, Nintendo 64, and several more. In doing so, they will learn about the history of modern video game franchises and see how technological developments have led to new innovations in gameplay and graphics. Modern gamers will gain a new appreciation for the games of the past.

Instructor: Mitch Frye

Offered: Week 1, Week 2, and Week 3

Period: B

Room: H104

### WEATHER FORECASTING

We've all seen weather forecasts, but do you know how they were created? In this course, students will explore the past, present, and future of weather forecasting, and examine current research that focuses on ways we might be able to control the weather in the future. By the end of the week, students will have the skills and knowledge to produce a short-term weather forecast for your family and friends.

This course includes a visit to a local television station, where you will meet a broadcast meteorologist and learn the secrets of presenting weather information to the public. It is recommended (though not required) that you take Introduction to Meteorology before this course.

Instructor: Chase Krebs

Offered: Week 1, Week 2, and Week 3

Period: B

Room: H305

### WEIGHT TRAINING

This class is designed to provide basic instruction techniques and participation in weight training activities. It will include methods to build, improve, and maintain proper muscular fitness. Students will

use both free weights and machine weights. It will also involve both knowledge of the equipment and proper safety procedures. Students may use the shallow end of the campus pool to cool off and refresh at the end of class, so please bring a swimsuit and towel.

Instructor: Bill Brouillet

Offered: Week 1, Week 2, and Week 3

Period: C

Room: Weight & Fitness Room

### WONDERFUL WORLD OF LEGO

Delve into the extensive world of Lego creation! In this class, students will build castles, race rocket powered cars, and experiment with underwater playsets, all while learning math and science through the physics and geometry of Lego. Most importantly, this class is created with imagination in mind; all students will have complete creative freedom to personalize and design their own works. This class also includes building competitions, with the winners receiving grand prizes of new lego sets. After learning and experimenting the first four days, the last day of class we will watch the Lego movie and have a free building session for students to show the skills they've learned throughout the week.

Instructor: Landon Dyken and Scott Evans

Offered: Week 1, Week 2, and Week 3

Period: A or B

Room: H304

### YOGA 101

Yoga is a very beneficial tool used to manage stress and gain body awareness. This course will introduce the students to a beginning level foundation of yoga. The course is very slow paced and will focus on developing a safe environment to learn basic poses, relax, breathe, stretch, play, and expand the student's horizons in a supportive and easy-going environment.

Instructor: Angel Jackson

Offered: Week 1, Week 2, and Week 3

Period: A

Room: Gym