



2008-2009

## Student Handbook

Our “Mission” is to enrich the quality of mathematics, technical, and science education by inspiring and challenging the most academically able high school students, by bringing to them exciting explorations in mathematics, science and technology, and by assisting in curriculum, staff development, and innovation for grade K-12 teachers. The Berrien County Mathematics and Science Center will serve as an example of how excellence in education can be achieved through cooperative and collaborative efforts of business, industry, and the school system.

Dear Center Students:

Welcome to the Berrien County Mathematics and Science Center! We are now in our 17<sup>th</sup> year of operation.

The next few pages show you our 2008-09 lay out and staff listing.

The Center is operated as a program of the Berrien County Intermediate School District (BCISD). The BCISD has appointed us to direct this project. Our office is at the BCISD Administrative Center in Berrien Springs, but you will see a lot of us at your Center. We want to do everything we can to make this a rewarding year for you.

You are joining one of seven schools in Michigan to offer a half-day accelerated program for high school students. We join over ninety specialized schools nationwide as a member of the National Consortium for Specialized Secondary Schools of Mathematics, Science, and Technology (NCSSSMST). We have the resources of a research caliber university, including newly remodeled mathematics and computer science facilities. The real key to our success will be you.

It is our purpose at the Center to keep your experiences as positive as possible. To do this we have established this handbook to provide certain policies and rules. We expect you to join with us in helping to create and maintain a climate that enhances life at the Center for everyone and enables all of us to satisfy great intellectual challenges. We encourage you to read this handbook and keep it for future reference. You are responsible for its contents.

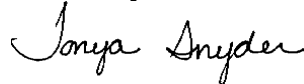
Best wishes to you for a successful year!

Sincerely,



Dennis Lundgren, Director  
Berrien County Mathematics & Science Center

Sincerely,



Tonya Snyder, Coordinator  
Berrien County Mathematics & Science Center

## Berrien County Mathematics and Science Center 2008-09 Calendar

Mon	Aug 25	Andrews College Electives Begin
Thurs	Aug 28	Freshmen Get Together Night – 7-9:00 PM – Smith Hall
Mon	Sep 01	<b>Center Closed, Labor Day</b>
Wed	Sep 03	All students in attendance (morning and afternoon)
TBA	Sep	Class elections
Tue	Sep 9	Class Pictures (8:55-Freshman, 9:30-Sophomores, 12:40-Juniors, 12:50-Seniors)
Thurs-Sun	Sep 18-21	Sophomores: Smoky Mountain Field Experience
Mon	Sep 22	Freshman: Family Potluck 6-8:00 PM – Dr. Greenley’s
Wed	Sep 24	College Preparation grades 10-12
Wed	Oct 08	MMPC – Math Contest (Sophomore – Senior)
Thurs-Sun	Oct 23-26	NCSSSMST Student Conference (New York)
Fri	Oct 24	End of Marking Period 1
Mon	Nov 03	Evening Parent Conferences Grades 9 & 12
Wed	Nov 05	Evening Parent Conferences Grades 10 & 11
Sat	Nov 15	Freshmen/Sophomores: “Lock-in”
Wed-Fri	Nov 26-28	<b>Center Closed, Thanksgiving</b>
Wed	Dec 03	MMPC Part II (Select Students Only)
Thr	Dec 18	Exams Completed
Thr	Dec 18	ISEF paperwork deadline
Fri	Dec 19	End of marking period 2 - Semester
	Dec 22- Jan 02	<b>Center Closed, Winter Holiday</b>
Mon	Jan 05	Center back in session/begin 2 <sup>nd</sup> Semester
Mon	Jan 19	<b>Center Closed, Martin Luther King, Jr. Day</b>
Tue	Feb 10	AMC – Math Competition (Sophomores – Seniors)
Mon	Feb 16	<b>Center Closed, President’s Day</b>
Sat	Feb 21	Junior/Seniors: “Lock-in”
Mon	Mar 02	New student applications due to BCISD
Mon	Mar 02	Evening Parent Conferences Grades 10 and 12
Tue	Mar 03	Evening Parent Conferences Grades 9 and 11
Wed	Mar 04	Berrien County Science Olympiad
Fri	TMar 06	End of marking period 3
Tue	Mar 06	AIME – Math Contest (Select Students Only)
Wed	Mar 25-26	ISEF
	Apr 6-10	<b>Center Closed, Spring Break</b>
	Apr 16-20	Berrien County Arts and Science EXPO, Orchards Mall
Fri	Apr 24	Michigan High School Research Symposium
TBA	May	Juniors: “Physics Day” field trip
Tue	May 05	Statistics AP Test - afternoon
Wed	May 06	Calculus AP Test – morning
Mon	May 11	Physics AP Test - afternoon
Fri	May 8	Senior exams (tentative)
Sun	May 17	Honors Night
Wed-Fri	May 20-22	Projected Final Exams
Mon	May 25	<b>Center Closed, Memorial Day</b>
Wed	May 27	Make-ups completed by this date

# Berrien County Mathematics & Science Center Staff

School Year  
2008-2009

**Location:** Andrews University  
Smith Hall  
Berrien Springs, MI  
**Main Number:** 269.471.7725

**Sponsor:** Berrien RESA

## Curriculum

### Mathematics

9-11	Dr. Keith Calkins	471.6629	<a href="mailto:calkins@andrews.edu">calkins@andrews.edu</a>
12	Mrs. Gina Creek	471.6646	<a href="mailto:creekg@andrews.edu">creekg@andrews.edu</a>

### Biology

9, 12	Dr. Marlene Murray	471.6243	<a href="mailto:mmurray@andrews.edu">mmurray@andrews.edu</a>
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### Chemistry

10, 12	Dr. David Alonso	471.6287	<a href="mailto:alonso@andrews.edu">alonso@andrews.edu</a>
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### Physics

11	Dr. Clark Rowland	471.3502	<a href="mailto:rowland@andrews.edu">rowland@andrews.edu</a>
11	Dr. Robert Kingman	471.3431	<a href="mailto:kingman@andrews.edu">kingman@andrews.edu</a>

### Computer Sci.

9, 10	Dr. Bill Greenley	471.6558	<a href="mailto:greenley@andrews.edu">greenley@andrews.edu</a>
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### Internship

11-12	Ms. Elvira Baumgartner		<a href="mailto:baumgare@andrews.edu">baumgare@andrews.edu</a>
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All Inquiries Concerning Grades Should be Directed to Your Local High School Counselor.

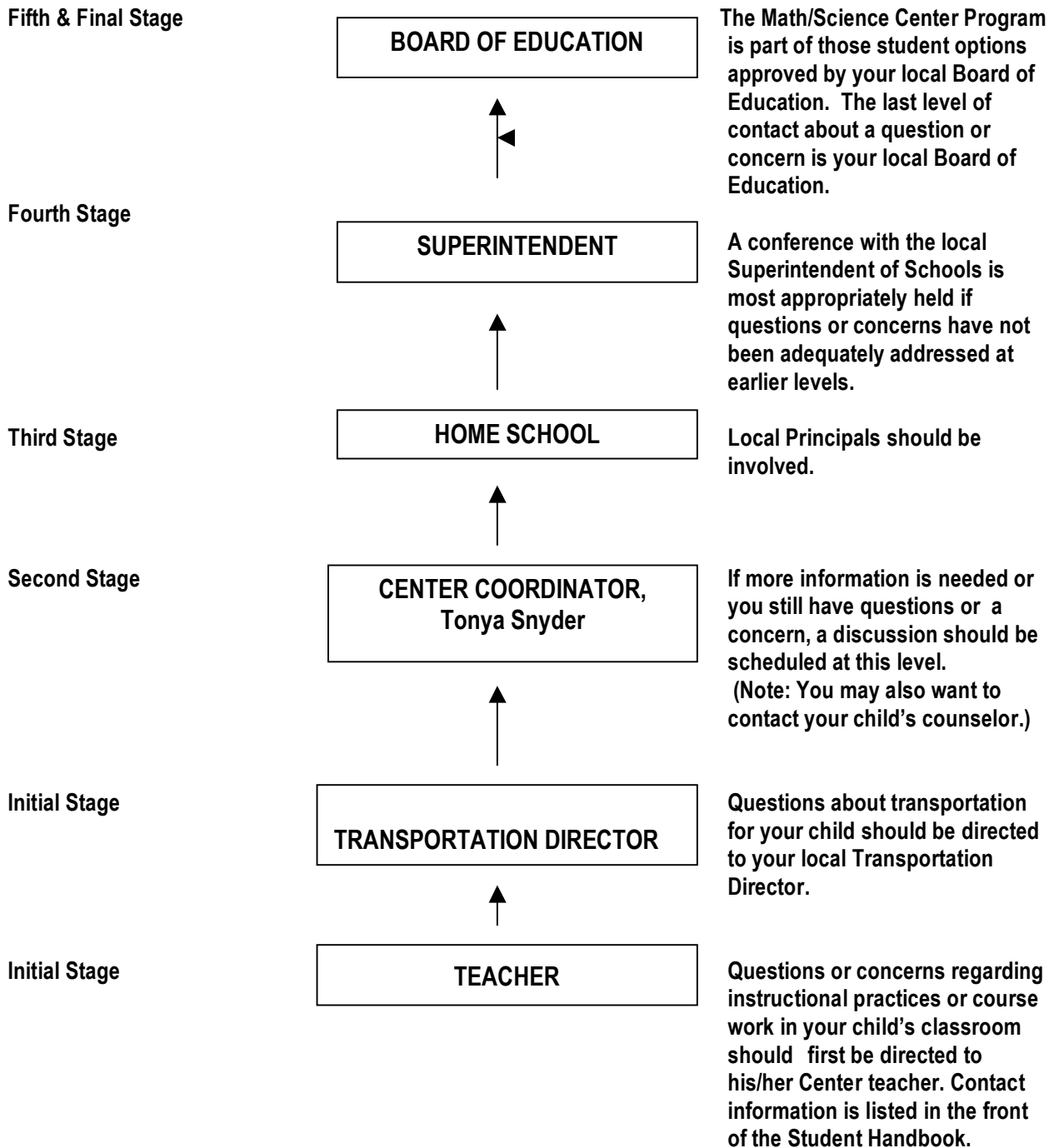
Please Refer All Center Absences to Meagan Pullar, Center Secretary – 471.7725 x 111

<b>Center Coordinator:</b>	<b>Tonya Snyder</b>	<a href="mailto:tsnyder@remc11.k12.mi.us">tsnyder@remc11.k12.mi.us</a>
<b>Phone:</b>	BCISD office	471.7725 x 360
	Andrews Univ. office	471.6557
<b>Fax:</b>		471.1221

<b>Secretary:</b>	<b>Meagan Pullar</b>	
<b>Phone:</b>		471.7725 x 111
<b>Fax:</b>		471.2941
<b>Website:</b>		<a href="http://www.bcmsc.org">www.bcmsc.org</a>

# Berrien County Mathematics & Science Center

## COMMUNICATION FLOWCHART Where Do You Go With a Question or Concern



NOTE: When in doubt about a particular starting point for a question or concern, contact the Math/Science Center Office (269.471.7725) for further information.

# Student Selection for Berrien County Math/Science Center

## **Freshmen Applicants**

Students admitted to the program must be current 8<sup>th</sup> graders and have satisfactorily completed first year algebra.

Students must register for the SAT and take the test in time for the Center to receive the results with their March 1st application. (SAT testing is usually administered in December or January). BCISD must receive a complete application, including student and teacher portions, by March 1st.

Applications are read by a screening committee composed of representatives from all participating schools. All applications are blinded (student name & district blocked out). Each application is read and rated by two or three people. A final raw score is assigned, based on the SAT test score, math and science proficiency, communication and interpersonal skills, motivation, performance and creative problem solving abilities.

It is the policy of the Center to open seats in the freshmen class in ranked order. On occasions, some students have been given consideration for extremely high (through the ceiling) SAT scores. Any maximal or minimum score levels used in selection for a given year are available through the Center's Intermediate School District office.

If a given district has more students qualify than they are able to support, they may elect to give up some seats.

Invitations to participate in the Center are issued by the local district. Students must sign a letter of commitment and take some screening tests before they enroll.

## **Meeting Needs of Entering Students Beyond Grade Level Sequence**

Students entering the Center Program are required to have completed freshmen algebra. Occasionally students admitted to the Center have also completed a sophomore level course in geometry or even higher level. If the student has already been advanced beyond freshmen algebra, the Center will strive to accommodate this student. Our Center grade level mathematics program has, as its goals, integration with science and technology grade level courses. In addition, our mathematics curriculum has been created so that each course goes beyond the traditional high school content and integrates discrete mathematics topics. These differences from the regular high school mathematics program and the advantage to students to interact with other highly capable students, like themselves, are reasons to keep all students participating in the full grade level program designed for them.

## **Maintaining a Seat in the Center Program**

Once a student has been admitted to the Center Program, it is not necessary to re-apply each year. Current students will be asked each spring to verify their enrollment for the following year. This will be handled through local Center instructors.

A student can expect to maintain his/her seat in the Center Program through satisfactory academic progress and good citizenship. Any student receiving marking period grades below the "C" level or causing disruption to the Center program will be notified and faculty/parent conference scheduled. An intervention plan will be worked out with appropriate timelines and the student's progress will be monitored. If the problem continues, the student and parents will be notified that continuing in the Center is not in the best interest of all involved.

## **New Upper Class Applicants (A few slots may be available each year).**

Upper class students admitted to the program must have satisfactorily completed coursework similar to that offered at the Center. BCISD has a special upper class application which can be submitted throughout the school year.

Students will be selected based on their demonstrated ability to successfully move into our accelerated program. Recent SAT desired, but not required. Invitations to participate in the Center are issued by the local district.

# GUIDELINES FOR STUDENT RESPONSIBILITY

The Center wishes to establish a relationship of trust based upon human values of self-respect and respect for others. No student has the right to interfere with the education of fellow students or with the proper environment necessary to obtain it. The following policies are designed to provide the safety and welfare of students while in attendance at the Berrien County Mathematics & Science Center.

**Absence/Tardy/Make-up:** All absences should be reported to the home school office and the Center, in accordance with local guidelines. Home schools will let the Center know the status of the student's absence, excused or unexcused. Center instructors will record any absence/ tardiness and report any repeated infraction to the Center Coordinator for further action. An absence is unexcused unless the Center is contacted. **Please Call Center Secretary or leave a message at 471.7725 x 111.**

Responsibility for making up work for an excused absence rests with the student (no exceptions). Make-up work must be submitted to instructional staff within the equal number of days absent, plus one. Assignments made prior to absences are not considered make-up. Instructional staff has the option to waive this policy.

Unexcused absences are caused by truancy, or failure to verify an absence. Class work missed during unexcused absences cannot be made up for credit.

In the case of an early dismissal or planned absence, parents/guardians should inform the home school office about one week in advance, if possible. Please also notify each Center teacher, in writing. Make-up work, scheduled assignments, and tests are due upon return from a planned absence unless arrangements are made with the instructor prior to the absence.

Teachers will maintain accurate, daily attendance records and report daily absences to the Center office. Teachers and Administrators will notify the parents/guardians of excessive absences.

**Punctuality:** This is an important key to success at the Center. Being on time to class and returning to class on time after a break is expected of all students. Tardiness will NOT be tolerated. Violation of this policy will result in disciplinary action.

**Academic Honesty:** Cheating will not be tolerated. Cheating is the submission of someone else's work as your own or the inappropriate use of your own work to help another student. Some examples of cheating include plagiarism (using the ideas or the writing of others without given permission), copying on tests or collaboration on homework when this is not permitted by the teacher, also allowing another student to use your work as an aid in doing his/her work on graded assignments or tests. **Violation of this honor code is subject to disciplinary action.**

**Transportation:** In keeping with the policy in other county shared-time programs, Center students will be expected to use the provided bus transportation to and from their school. Any different arrangement must be worked out with the local school and the Center.

**Bus Boarding:** Students should board the buses as a group. Bus laws dictate that red flashing lights must be on whenever students are in the process of boarding a bus. If boarding takes place over several minutes, then traffic is held up for that time. To prevent this, please wait in the lobby until all students for one bus are present. Then depart as a group. Students are expected to abide by local school bus codes.

**Credits:** The Center will recommend three credits to the home school for work completed at the Center. The Center will be responsible for informing home school districts of grade and credit recommendations. Diplomas will be granted by the student's home district; graduation requirements of the home school district must be fulfilled.

**Daily Schedule:** Center teachers will review starting and ending times at the host school, as well as appropriate entrance and exit.

**Discipline Standards:** Discipline standards for the Center will be those standards described in sending school codes. Center teachers will acquaint students with any particular additional codes in effect at Andrews University.

**Daily Schedule Schools Act of 1994:** The possession of knives, guns, or other weapons will result in immediate removal from school. Administrative and criminal justice personnel will carefully review each case to determine an appropriate plan for educational and criminal justice. In accordance with the federal Gun-Free School Act of 1994, any student who is determined to have brought a weapon to school will be expelled from school for a period of not less than one year. (The term “weapon” means a firearm as such term is defined in section 921 of title 18, United States Code).

**Harassment:** It is the policy of the Berrien County Mathematics and Science Center to maintain a learning and working environment that is free from harassment – racial, sexual, or any unwanted attention to person differences. It shall be a violation of this policy for any member of the Center staff to harass a student through inappropriate conduct or communications. It shall also be a violation of this policy for students to harass other students of the staff through conduct or communications of an inappropriate nature. Harassment shall include verbal harassment or abuse, written harassment or abuse, pressure for sexual activity, repeated remarks to a person with sexual or demeaning implications, unwelcome touching, suggesting or demanding sexual involvement accompanied by explicit threats, including but not limited to grades, job, etc. Any person who believes he/she has been subject to harassment may bring forward a written or verbal complaint following the communication flow chart published in this handbook.

**Dismissal:** Students are to remain in the Center for the entire daily session. If a student must leave because of personal illness, arrangements will be made by Center staff.

The Center accepts no responsibility for the actions of students while not present in the Center. Being out of the Center without proper early dismissal or parental permission may be subject to disciplinary measures. Other areas besides the Center area are considered off limits without proper permission from the instructor.

**Dress:** The Center expects that dress be neat, clean, and “in good taste” and appropriate for the occasion. While we recognize that definitions vary, in general, dress or grooming that attracts undue or negative attention is not acceptable. Short shorts and bare midriffs are examples of inappropriate dress. Shoes must be worn at all times, hats are considered out-of-doors apparel and shall not be worn in classrooms, labs, and offices. Special clothing required when working in laboratory situations for safety reasons will be described by the instructor.

**Textbooks & Supplies:** Required textbooks are issued by Center instructors. In some classes, an additional set of books or a variety of materials will be available to be shared. Students will be held responsible for books issued to them; and if a book is lost during the school year, it will be necessary to make arrangements immediately to purchase another school owned book as a replacement.

At the close of the school year, books are to be returned and damage or wear beyond normal usage will be charged to the student.

The Center encourages students to purchase their own graphing calculator. However, sufficient calculators for each student in need will be available on a limited use basis. Students who check these out are responsible for their return without damage.

Materials and equipment that are loaned to students, such as lab or math tools, safety glasses, etc., are to be returned in good condition, and any loss will be charged to the student. Any materials improperly removed from the library, or taken from a lab or classroom is subject to disciplinary action.

**Due Process Procedure:** The proper channeling of complaints involving instruction, discipline, or learning materials is as follows:

1. Teacher
2. Center Director
3. Home School Principal
4. Home School Superintendent

Specific procedures for processing complaints are available from your instructor, Center Director, or see Communication Flow Chart in this Handbook.

**Emergency Drills:** Fire and disaster drills are held periodically throughout the year. All students, instructors, guests, and others in the building must take part in the drills. Procedures will be explained to students in each class by the instructor. Each student should be familiar with the rules for each room occupied by that student on a regular basis.

**Student Assistance:** The Berrien County Mathematics and Science Center is committed to helping all students fully realize their potential and to provide access to equipment and academic assistance as needed. All instructors will advise students how to best contact them by phone. In addition each instructor will post office hours and provide time when they can confer with individual students by appointment. Should it be necessary to coordinate student use of equipment at the home school or arrange tutorial assistance, Center teachers will cooperate to help facilitate these arrangements.

**Use of Center Libraries:** Center teachers will advise students on appropriate procedures for accessing Center libraries.

**First Aid & Illness at School:** Emergency first aid will be given when an accident occurs at the Center. No medication is provided at the Center. If a student is too ill to remain in class, he/she will report to the Center office. If necessary, the student will be excused to go home after the Center has received instructions from the home or an authorized person named on the registration form designated in case of an emergency.

**Grading and Evaluation:** Grade reports from the home school. Grading will be based on the following system that reflects higher expectations than home school letter grades:

- A= Excellent
- B= Good achievement, meeting all course requirements
- C= Acceptable, minimally meeting requirements of course
- D= Unsatisfactory, not acceptable to BCMSC standards
- F= Failing
- I= Incomplete

Both plus (+) and a minus (-) will be included in the final grade sent to the home school.

**Incomplete:** When there are unusual circumstances which prevent the completion of assigned tasks during a specific grading period, the instructor has the option to evaluate a student's work as incomplete (I). It is expected that an "I" will be made up in 10 days following the close of the grading period. Instructors may modify this timeline for special circumstance and with the approval of the Coordinator. Failure to make up the "I" may result in a failing grade. Teachers will inform parent/guardians of excessive failure to complete assignments, prior to the assignment of an "I". It is the student's responsibility to complete any and all obligations in the course and earn a permanent grade.

**BCMSC Home School Schedule Conflicts:** The Center realizes that school schedules often conflict. However, Berrien County Mathematics/Science Center will be open except for those days listed in the calendar. If the home school district is not in session when the Center is, please work with your local district to arrange transportation. If a student has a conflicting obligation in the home school, he/she is responsible for work missed at the Center.

**Off Campus Activities:** Occasionally, Center sponsored activities will require travel away from the Center. Most trips are within the time students are at the Center.

By enrolling students in the Center, parents extend permission for them to travel in school vehicles during the normal operating hours of the Center. For trips that extend beyond the normally scheduled time at the Center, students will provide parents with a permission form for them to sign and return to the appropriate staff person.

**Competitive Test, Activities, and Special Events:** The Center encourages and requires participation in a number of competitive tests and activities. All students in grades 10-12 are required to take the Michigan Math Prize Test and American Mathematics Competition. Students will be informed by their instructors of any other programs that may be required.

**School Closing:** In case of bad weather, it may be necessary to cancel school, listen to local Radio/TV stations for announcements.

The Center will be closed if Berrien Regional Education Service Agency (Berrien RESA) is closed. Otherwise the Center will be open even if outlying schools are closed.

The district uses a system to instantly alert families/caregivers when these events happen. If you would like to be contacted/notified via phone, e-mail, or PDA you will need to ensure that the contact information is accurate and up to date.

**Title IX:** In keeping with Title IX of the 1972 Education Amendments and other legislation affecting treatment of students and employees, it is the policy of the Berrien County Mathematics and Science Center not to discriminate regarding the actions, application or interpretation of Center policies by any instructor or administrative officer.

Any student who believes he/she has been discriminated against in violation of Title IX, may file a complaint. See "Due Process Procedure" section of this document.

**Electronic Devices:** Students are not permitted to use personal electronic devices, such as cell phones, MP3 or DVD players during class. These devices are to be turned off and stored during class. Violation of this policy will result in disciplinary action.

**Building Use:** Students are permitted to be in designated areas only (Smith Hall, Science Complex and buildings that house the elective classes for the Junior and Seniors) or as directed by the instructors. Students are not to visit the Bookstore or Student Center during the school day. Violation of this policy will result in disciplinary action.

**Dropping Class (Electives):** Withdrawing from an Elective class is costly to the Mathematics & Science Center. Your decision to drop a class after the "Drop Date Deadline" will be at the expense of the student.

**ID Cards:** Students are issued one Andrews ID Card. If this card is lost/stolen/unable to be located, the student is responsible for replacing it.

## FAIR ACCESS POLICY

The Center will be diligent in its efforts not to discriminate on any of the subsections identified. Eligibility requirements for participation are designed to ensure that each participant has the prerequisite knowledge and skills to be able to benefit from the special activities so the program can achieve the purpose for which it has been established.

The Michigan Department of Education declares it to be the policy of the Mathematics and Science Centers programs funded under Section 99 of the State's School Aid Act to provide an equal opportunity for all students, regardless of race, color, creed, disability, religion, sex, ancestry, national origin, place of residence with the boundaries of the Center service area, or social or economic background, to learn through the curriculum provided by the Center.

- A. **CURRICULA CONTENT** - review current and proposed course guides and textbooks to detect any bias based upon race, sex, religion, national origin, ancestry, or culture ascertaining whether or not supplemental materials, singularly or taken as a whole fairly depict the contribution of both sexes, various races, ethnic groups, etc., toward the development of human society.
- B. **STAFF TRAINING** - develop an ongoing program of in-service trainings for Center personnel designed to identify and solve problems of racial, sexual, religious, national, cultural, or other bias in all aspects of the program.
- C. **STUDENT ACCESS** – review current and proposed programs, activities, facilities, and practices to ensure that all students have equal access thereto and are not segregated on the basis of race, color, creed, sex, disability, or national origin in any duty, work, play, classroom, or school practice, except as may be permitted under State regulations.
- D. **CENTER SUPPORT** – ensure that like aspects of the Center program receive like support as to staff size, compensation, purchase and maintenance of facilities and equipment, access to such facilities and equipment, and related matters.
- E. **EVALUATION** - ensure that tests, procedures, or guidance and counseling materials, which are designed to evaluate progress, rate aptitudes, analyze personality, attitude, or in any manner establish or tend to establish a category by which participants may be judged, are not differentiated or stereotyped on the basis of race, color, creed, sex, or national origin.

We are charged to deal fairly with each other and labor to change customs and structures that promote injustice, prejudice, or racism.

# FIELD TRIP PROCEDURES

TYPE I: In county, within the school day, no extra student cost

Example – Student functions at the Center, local nature center, or area businesses.

Parents must turn in a special permission slip for these events.

Supervisor arranges transportation and alerts home school to any deviation in daily schedule.

TYPE II: Out of county, no over night required, minimal student cost

Example – Physics Day at Great America in Chicago, IL.

Parents and home schools will receive descriptions, purposes and itinerary.

Parents must turn in a special permission slip for these events.

Students must make arrangements to be away from their home school.

TYPE III: Out of county, over-night required, students expected to pay portion of costs

Example – National Student Conferences, sophomores Smoky Mountain trip

BCISD Administration must approve descriptions, purposes and itinerary.

Trip must be budgeted in the Center program.

Local Superintendents must approve the proposed trip.

Parents and home schools will receive descriptions, purposes and itinerary.

Parents must turn in a special permission slip with registration for these events which will include a personal behavior contract attached.

Students must make arrangements to be away from their home school.

# Center Course Descriptions

## School Year 2008-2009

*All students are required to complete the following advanced honors courses. All science courses are laboratory based. Some students may be accelerated in the mathematics sequence and have the option of taking university mathematics courses after completing AP Calculus and AP Statistics.*

### Grade 9 Courses

#### Integrated Geometry

This project-oriented course provides a rich, rigorous foundation in geometry, uniquely blended with set theory, probability and statistics, and further work in algebra. Problem solving and technology, including computers and graphing calculators, are integrated into each of these topics.

#### Research Biology

Topics include cell biology, genetics, structure and function of plant and animal kingdoms, comparative anatomy and physiology, and ecology/environmental studies. Hands-on time with sophisticated instrumentation and procedural techniques culminate in a research project.

#### Computer Science

This course introduces the student to the computer as a tool for writing, studying, and publication. Basic knowledge of how computers work and of common computer terminology, including the understanding of the various applications of computers are included. Students become immersed in multi-media applications.

### Grade 10 Courses

#### Integrated Algebra

The major component of this course is advanced topics in algebra. The students continue the study of probability/statistics, including probability distribution and linear regression. The course integrates geometry, algebra, statistics, discrete mathematics, polynomial functions, and problem solving with the use of graphing calculators and computers.

#### Analytical Chemistry

This course is the study of the composition of substances. The course includes a broad range of chemical concepts producing a well-balanced preparation for college classes. Classroom instruction is integrated with meaningful laboratory experiences in order to develop each student's knowledge of analytical chemistry itself.

#### Computer Science

This course emphasizes computer problem solving using structured design and programming. Students learn to approach problems systematically and approach solutions using well-known techniques of proven effectiveness. Students create modular programs using current programming languages.

#### AP Statistics

Students accelerated in mathematics beyond our normal sequence frequently take AP Statistics. The Advanced Placement Statistics course follows the Advanced Placement syllabus and students may take the AP test in May. Course study will include exploring data, planning a study, modelling patterns using probability and simulation, and statistical inference. (AP Statistics is offered by invitation only.)

## Grade 11 Courses

### Pre-Calculus

Course topic includes college algebra, advanced trigonometry, and analytic geometry of two and three dimension. Students experience a thorough analysis of all elementary functions and curve-sketching. Selected discrete mathematics topics including normal probability distributions and testing hypotheses are explored. Practice with proofs, such as mathematics induction, are included. Experiences with computer software and graphing calculators are incorporated.

### AP Physics

This course emphasizes the fundamental laws of physics and the many applications to the physical world. Students study classical mechanics, thermal physics, relativity, electricity, and magnetism, nuclear physics, light, waves, and quantum physics. Demonstrations and laboratory experiences are important components of the course with much of the experimental data obtained by computer-controlled data acquisition and graphical analysis.

## Grade 12 Courses

### AP Calculus

The Advanced Placement Calculus AB course follows the Advanced Placement syllabus and students may take the AP test in May. Advanced students may follow the BC course. Course study will include properties of functions, limits, differential calculus, and integral calculus.

### Advanced Interdisciplinary Science (Biology/Chemistry)

A one-semester course designed to introduce the student to the field of biotechnology with emphasis on laboratory investigations and scientific writing. Lecture material covered includes DNA structure and function, genetic engineering, DNA sequencing, cloning, and stem cell research. Lab investigations include DNA isolation and quantification, restriction enzyme digestion, agarose gel electrophoresis, random amplified polymorphic DNA (RAPD), cloning, and transformation. Students are expected to write lab reports and research paper based on the lab investigations.

Grade 12 bioorganic chemistry is an accelerated college preparatory course. Bioorganic chemistry is a mixture of organic chemistry and biochemistry. Organic chemistry is the study of carbon compounds. Biochemistry is the study of biological molecules—the chemistry of living things. Classroom instruction will be integrated with meaningful laboratory experience in order to develop each student's knowledge of chemistry itself as well as a broad range of chemical concepts. Since chemistry is an experimental science that involves human activity, each student will be an active participant in learning about this subject.

*Students in grades 11 and 12 may choose an elective in addition to core courses. The Center offers two options for electives:*

### Center Internship

This is an elective course designed to acquaint students with applications of science and technology, career opportunities in the sciences, and to allow students to continue to develop science research and writing skills. Students are placed with practicing business and science mentors for 20-30 hours per semester of on-site project development time.

### Web-based Publishing I & II

This is a Center elective course that builds student's skills in multi-media computer publishing. Students work with various software packages to create web-based products. This includes the creation of Web pages and CD-ROMs. The creation of a Center yearbook is a major project of the course.

### University Courses

Students may choose an elective from a number of approved undergraduate university courses in mathematics, science, technology, and foreign languages.

**Berrien County Mathematics & Science Center  
Andrews University  
Four Year Plan**

<b>Freshman</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>R</b>	<b>F</b>
8 - 8:50 AM	Geometry	8 - 8:55 AM Geometry	Geometry	8 - 8:55 AM Geometry	8 - 8:45 AM Geometry
9 - 10:30 AM	Biology	Computer Science I	Biology	Computer Science I	8:50 - 9:35 Computer Science I <hr/> 9:45 - 10:30 Biology

<b>Sophomore</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>R</b>	<b>F</b>
8 - 9:35 AM	Computer Programming	Chemistry	Computer Programming	Chemistry	8 - 8:45 AM Chemistry <hr/> 8:55 - 9:40 AM Algebra II
9:45 - 10:30 AM	9:40 - 10:30 AM Algebra II	Algebra II	9:40 - 10:30 AM Algebra II	Algebra II	9:45 - 10:30 AM Computer Programming

<b>Junior</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>R</b>	<b>F</b>
11:30 - 12:20 PM	Electives	Electives	Electives	Electives	Electives
12:25 - 2:10 PM	Pre Calculus	Physics	Pre Calculus	Physics	Alternating Weeks: Pre Calculus <hr/> Physics

<b>Senior</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>R</b>	<b>F</b>
11:30 - 12:20 PM	Electives	Electives	Electives	Electives	Electives
12:25 - 2:10 PM	Biol/Chem	Calculus	Biol/Chem	Calculus	12:25 - 1:15 PM Biol/Chem <hr/> 1:25 - 2:10 PM Calculus

## Elective Course Descriptions 2008-2009

These electives are within the college environment. As these are university courses, the Center has no control or supervision of these courses. **Students have an added responsibility** to be sure they attend class, keep up with work and maintain their grade. Instructors do not send out progress reports, attendance reports or notification if students do not turn in work or have low grades.

Grades will be reported to school in a manner similar to our regular program regardless if the course is taken for college credit or high school credit only. Some courses have limited enrollment. Courses may be deleted or added by the beginning of the semester.

Fees for these electives for high school credit will be paid by the Center. If parents should choose the option of registering their student for college credit, in addition, a fee of \$203.50 per credit hour will be due to Andrews University at the time of semester registration. This rate is one fourth of Andrews' undergraduate tuition rate. (For example: The total for a four-hour course is \$814 and a two-semester year is \$1,628.)

### *Semester Courses in Sequence*

#### **SPAN 171-172 - Elementary Spanish I and II** **4 credits**

Grammar with reading and writing of simple Spanish in the context of significant aspects of culture - oral and listening work is stressed.

### One Semester Courses

#### **BIOL 260 - General Microbiology** **4 credits**

Includes history, morphology, classification, control, growth, transmission, and pathogenicity of selected bacteria, viruses, rickettsia, fungi, and parasites. Covers the nature of host defenses against pathogens, including the acquisition of specific immunity and immune disorders. Lab required.

#### **BIOL 418 – Immunology**

Topics include organs and cells of the immune system, antigens, immunoglobulins, antibody diversity, tolerance and memory, complement, cell mediated immunity, regulation, hypersensitivity, autoimmune diseases, transplantation, and tumor immunology. BIOL 260 General Microbiology or permission of the instructor required.

#### **FDNT 230 – Nutrition** **3 credits**

Basic principles of normal human nutrition, including nutrients and allowances for various age groups.

#### **PHYS 110 – Astronomy** **4 credits**

Exploring the cosmic environment—the solar system, stars and their development, star clusters, the interstellar medium, galaxies, and large-scale features of the Universe. Permission of the instructor required.

**Scientific Internship****HS credit only**

This is a Center elective course designed to acquaint students with applications of science and technology, career opportunities, and to allow students to continue to develop science research and writing skills. Professionals from the community will expose students to a broad range of work assignments and degree programs in science to include mathematics and technology. Students will participate in arranging speakers and appropriate follow up. Students will become acquainted with professional journals. Particular emphasis will be placed on discerning among various science specialties such as those in medicine or engineering. Staff will help find placements with practicing business and science mentors for 20-25 hours per semester of on-site project development time. **Recommended for all students for one semester in either the junior or senior year.**

**Web-Based Publishing I & II****HS credit only**

This is a Center elective course that builds student's skills in multi-media computer publishing. Students work with various software packages to create web-based products. This includes the creation of Web pages and CD-ROMs. The creation of a Center yearbook is a major project of the course. Requires consent of the instructor.

**Berrien County  
Mathematics and Science Center  
Electives 2008-2009**

*Semester Courses in Sequence*

Course #	Title of Course (Days of week)	Credits/Semester	Fall	Spring
SPAN 171-172	Elementary Spanish I and II (MTWRF)	4	x(4)	x(4)

One Semester Courses

Course #	Offering	Title of Course (Days of week)	Credits/Semester	Fall	Spring
BIOL 260	(fall only)	General Microbiology (MWF) Lab Monday and Wednesday 2:00 – 3:30	4	x	
BIOL 418	(spring only)	Immunology (MW)	2		x
FDNT 230	(fall & spring)	Nutrition (MWF)	3	x	or x
PHYS 110	(fall & spring)	Astronomy (MWF) Lab Monday 7:30-9:20 PM	4	x	or x

**Additional Courses – High School Credit Only**

Title of Course	Fall	Spring
Center Internship (One Semester Center Course)	x or	x
Web Based Publishing I & II Requires consent of the instructor, Email Mr. Calkins at calkins@andrews.edu for permission, limited enrollment	x and/or	x
Home School Elective (No elective scheduled at the Center)	x and/or	x

All classes 11:30 – 12:20 on scheduled days.