This course is an integrated mathematics course. Concepts are introduced incrementally and are continually practiced throughout the problem sets. Students continue to build upon concepts learned in Practical Math 2 and 3. The class will focus on math skills and practical applications as these skills relate to daily living situations.

Alignment to the Iowa Core Curriculum: Understands, applies and extends understanding of algebra, geometry, statistics and probability.

The instruction will develop fundamental concepts of mathematics and concepts of operations and problem solving. Units covered include: operations with numbers, identify algebraic expressions, solve equations, use of graphs, measurement and solving real world problems. Real world applications: money concepts, comparative shopping, purchasing skills, budgets, measuring (cooking and home repair), reading and using graphs.

Alignment to the Iowa Core Curriculum: Instruction, learning, and assessment are built on the 9-12th grade-band expectations of the Iowa Core and the Essential Elements.

Students planning to enroll in a 4-year college or university should take at least one additional semester of chemistry or physics as an elective.

Students planning to enroll in a 4-year college or university should take at least one additional semester of chemistry or physics as an elective.
### PS9 PHYSICS

**SCI082**

- **Duration:** semester course
- **Credits:** 1
- **Open to:** freshmen
- **NCAA:** approved
- **Prerequisite:** none

This physical science course is designed to provide a base understanding of the components of physics. The course will focus on how matter moves, how it is made to move, and the energies involved. Key concepts include: motion, forces, momentum, energy, Newton's Laws, waves, electricity/magnetism, and light. Inquiry-based labs and hands-on engineering are integrated in the course.

Alignment to the Iowa Core Science Standards: HS-PS2 Motion and Stability: Forces and Interactions (HS-PS2-1, HS-PS2-2, HS-PS2-3, HS-PS2-4, HS-PS2-5), HS-PS3 Energy (HS-PS3-1, HS-PS3-2, HS-PS3-3, HS-PS3-5), HS-PS4 Waves and their Applications in Technologies for Information Transfer (HS-PS4-1, HS-PS4-2, HS-PS4-3, HS-PS4-4, HS-PS4-5) and HS-ETS Engineering Design (HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4). For more information, please visit [www.nextgenscience.org](http://www.nextgenscience.org) for a full description of each standard.

**COMMENT:** Students planning to enroll in a 4 year college or university will want to take at least one additional semester of elective chemistry or physics during their sophomore, junior, or senior year.

### HONORS PS9 PHYSICS

**SCI092**

- **Duration:** semester course
- **Credits:** 1
- **Open to:** freshmen
- **NCAA:** approved
- **Prerequisite:** none

This physical science course is for the academically advanced student seeking a rigorous path in physics. The course will focus on the structure and interaction of matter at the molecular level with laboratory experiences that will connect these concepts to a macro level. Pacing and breadth of concepts covered will be increased compared to the regular PS9 Physics course. This course will serve as a possible lead-in to AP Chemistry.

Alignment to the Iowa Core Science Standards: HS-PS1 Matter and its Interactions (HS-PS1-1, HS-PS1-2, HS-PS1-3, HS-PS1-4, HS-PS1-5, HS-PS1-6, HS-PS1-7, HS-PS1-8), HS-PS2 Motion and Stability: Forces and Interactions (HS-PS2-6), HS-PS3 Energy (HS-PS3-4), and HS-ETS Engineering Design (HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4). For more information, please visit [www.nextgenscience.org](http://www.nextgenscience.org) for a full description of each standard.

**COMMENT:** Students planning to enroll in a 4 year college or university will want to take at least one additional semester of elective chemistry or physics during their sophomore, junior, or senior year.

### ESSENTIAL ELEMENTS OF SCIENCE

**XSM611 (Sem 1), XSM612 (Sem 2)**

- **Duration:** year course
- **Credits:** 2
- **Open to:** all students
- **Prerequisite:** placement based on assessment and instructor recommendation

The instruction will provide students the opportunity to discover and understand the role of physical, earth, and global sciences. Units covered include: apply aspects of chemistry through labs and activities, investigate aspects of science through scientific inquiry, problem solving and discussions. Real world applications: chemical properties, weather, catastrophic occurrences, recycling and making predictions.

Alignment to the Iowa Core Curriculum: Instruction, learning, and assessment are built on the 9-12th grade-band expectations of the Iowa Core and the Essential Elements.
LIFE SCIENCE

CREDITS REQUIRED FOR GRADUATION

2 credits are required for graduation from the Dubuque Community School District.

Credits earned beyond the requirement are automatically counted as Elective credits.

BIOLOGY

SCI131 (Sem 1), SCI132 (Sem 2)

DURATION: year course

CREDITS: 2

OPEN TO: sophomores, juniors, seniors

NCAA: approved

PREREQUISITE: PS9 Chemistry, PS9 Physics

This course is designed for those students who desire a thorough background in basic biology and a strong basis for further science study. The course of study in Biology includes all the major themes essential to understanding life. This is often achieved through problem solving, laboratory experiences, and group activities. Students will apply the foundational concepts of Biology to real-world scenarios.

Alignment to the Iowa Core Science Standards: HS-LS1 From Molecules to Organisms: Structures and Processes (HS-LS1-1, HS-LS1-2, HS-LS1-3, HS-LS1-4, HS-LS1-5, HS-LS1-6, HS-LS1-7), HS-LS2-2 Ecosystems: Interactions, Energy, and Dynamics (HS-LS2-3, HS-LS2-4, HS-LS2-5, HS-LS2-6, HS-LS2-7), HS-LS3 Heredity: Inheritance and Variation of Traits (HS-LS3-1, HS-LS3-2, HS-LS3-3, HS-LS3-4, HS-LS3-5, HS-LS3-6), HS-PS4 Biological Evolution: Unity and Diversity (HS-PS4-1, HS-PS4-2, HS-PS4-3, HS-PS4-4, HS-PS4-5, HS-PS4-6) and HS-ETS Engineering Design (HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4). For more information, please visit www.nextgenscience.org for a full description of each standard.

HONORS BIOLOGY

SCI141 (Sem 1), SCI142 (Sem 2)

DURATION: year course

CREDITS: 2

OPEN TO: all students

NCAA: approved

PREREQUISITE: for incoming freshmen, simultaneous enrollment in Honors PS9 Chemistry and Honors PS9 Physics with instructor approval; for sophomores, completion of PS9 Chemistry and PS9 Physics with instructor approval; for juniors and seniors, instructor approval

This course is designed for the academically advanced student who desires a comprehensive background in biology to assist in future science studies. The course of study in Honors Biology includes an in-depth, accelerated approach to all the major themes essential to understanding life. This is often achieved through problem solving, laboratory experiences, and group activities. The text material provides the factual foundation necessary to understanding the principles of life discussed in the course.

Alignment to the Iowa Core Science Standards: HS-LS1 From Molecules to Organisms: Structures and Processes (HS-LS1-1, HS-LS1-2, HS-LS1-3, HS-LS1-4, HS-LS1-5, HS-LS1-6, HS-LS1-7), HS-LS2-2 Ecosystems: Interactions, Energy, and Dynamics (HS-LS2-3, HS-LS2-4, HS-LS2-5, HS-LS2-6, HS-LS2-7), HS-LS3 Heredity: Inheritance and Variation of Traits (HS-LS3-1, HS-LS3-2, HS-LS3-3, HS-LS3-4, HS-LS3-5, HS-LS3-6), HS-PS4 Biological Evolution: Unity and Diversity (HS-PS4-1, HS-PS4-2, HS-PS4-3, HS-PS4-4, HS-PS4-5, HS-PS4-6) and HS-ETS Engineering Design (HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4). For more information, please visit www.nextgenscience.org for a full description of each standard.

ESSENTIAL ELEMENTS OF SCIENCE

XSM611 (Sem 1), XSM612 (Sem 2)

DURATION: year course

CREDITS: 2

OPEN TO: all students

PREREQUISITE: placement based on assessment and instructor recommendation

The instruction will provide students the opportunity to discover and understand the role of physical, earth, and global sciences. Units covered include: apply aspects of chemistry through labs and activities, investigate aspects of science through scientific inquiry, problem solving and discussions. Real world applications: chemical properties, weather, catastrophic occurrences, recycling and making predictions.

Alignment to the Iowa Core Curriculum: Instruction, learning, and assessment are built on the 9-12th grade-band expectations of the Iowa Core and the Essential Elements.

EARTH / SPACE SCIENCE

CREDITS REQUIRED FOR GRADUATION

2 credits are required for graduation from the Dubuque Community School District.

Credits earned beyond the requirement are automatically counted as Elective credits.

HONORS NEXT GEN GLOBAL SCIENCE

SCI151 (Sem 1), SCI152 (Sem 2)

DURATION: year course

CREDITS: 2

OPEN TO: sophomores, juniors, seniors

NCAA: approved

PREREQUISITE: PS9 Chemistry (or Honors) and PS9 Physics (or Honors) with instructor approval, completion or simultaneous enrollment in Biology (or Honors) with instructor approval

Honors Next Gen Global Science is a year-long course that will provide students with the opportunity to discover and expand connections between science, technology, and global societies. This study of natural connections will help students become stewards of the environment, more informed citizens, and better decision-makers. Students will investigate the various aspects of our Earth, the Solar System and the Universe through scientific inquiry, laboratory activities, problem solving, current events, discussions, and projects. Honors Next Gen will have a strong presence of mathematics in regards to some concepts, i.e. Kepler’s Laws of Motion or Climate Modeling.

Alignment to the Iowa Core Science Standards: HS-ESS2- Earth’s Systems, HS-ESS3 Earth and Human Activity, and HS-LS2 Ecosystems: Interactions, Energy, and Dynamics. In addition, it includes concepts in HS-ESS1 Earth’s Place in the Universe and HS-LS4 Biological Evolution: Unity and Diversity.
**NEXT GEN GLOBAL SCIENCE**

SC161 (Sem 1), SC162 (Sem 2)

- **Duration:** year course
- **Credits:** 2
- **Open to:** juniors and seniors
- **NCAA:** approved
- **Prerequisite:** PS9 Chemistry, PS9 Physics, Biology

Next Gen Global Science is a year-long course that will provide students with the opportunity to discover and expand connections between science, technology, and global societies. This study of natural connections will help students become stewards of the environment, more informed citizens, and better decision-makers. Students will investigate the various aspects of our Earth, the Solar System and the Universe through scientific inquiry, laboratory activities, problem solving, current events, discussions, and projects.

Alignment to the Iowa Core Science Standards: HS-ESS2- Earth's Systems, HS-ESS3 Earth and Human Activity, and HS-LS2 Ecosystems: Interactions, Energy, and Dynamics. In addition, it includes concepts in HS-ESS1 Earth's Place in the Universe and HS-LS4 Biological Evolution: Unity and Diversity.

**ESSENTIAL ELEMENTS OF SCIENCE**

XSM611 (Sem 1), XSM612 (Sem 2)

- **Duration:** year course
- **Credits:** 2
- **Open to:** all students
- **Prerequisite:** placement based on assessment and instructor recommendation

The instruction will provide students the opportunity to discover and understand the role of physical, earth, and global sciences. Units covered include: apply aspects of chemistry through labs and activities, investigate aspects of science through scientific inquiry, problem solving and discussions. Real world applications: chemical properties, weather, catastrophic occurrences, recycling and making predictions.

Alignment to the Iowa Core Curriculum: Instruction, learning, and assessment are built on the 9-12th grade-band expectations of the Iowa Core and the Essential Elements.

**SCIENCE ELECTIVES**

**SEMESTER PHYSICS**

SCI183

- **Duration:** semester course
- **Credits:** 1
- **Open to:** sophomores, juniors, seniors
- **NCAA:** approved
- **Prerequisite:** PS9 Physics (or Honors), completion of Algebra II

This course is designed for students who have completed the PS-9 Physics course and desire further study in physics. This will be a continuation of the material from PS-9 Physics. Students will further develop critical thinking skills and mathematical application in the context of physics. In this course, a conceptual and analytical approach is taken in investigating and explaining the laws of the physical world. Concepts include: kinematics, forces, vectors, waves, and energy. Students will study these laws through laboratory experiments, demonstrations, and problem solving. This coupled with the PS-9 Physics (9th grade) course will be recognized by Iowa's Regent (State) Universities as 1 year of physics.

Alignment to the Iowa Core Science Standards: HS-PS1 Matter and Its Interactions, HS-PS2 Motion and Stability: Forces and Interactions, HS-PS3 Energy and HS-PS4 Waves and Their Applications in Technologies for Information Transfer.

**SEMESTER CHEMISTRY**

SCI184

- **Duration:** semester course
- **Credits:** 1
- **Open to:** sophomores, juniors, seniors
- **NCAA:** approved
- **Prerequisite:** PS9 Chemistry (or Honors), completion or simultaneous enrollment in Algebra II

This course is designed for students who have completed the PS-9 Chemistry course and desire further study in chemistry. This will be a continuation of the material from PS-9 Chemistry. The course of study is designed to cover concepts of chemistry on a descriptive and quantitative level. Laboratory activities will be used to illustrate the important concepts. This course is designed to equip students with the background to understand how chemistry fits into everyday living. This coupled with the PS-9 Chemistry (9th grade) course will be recognized by Iowa's Regent (State) Universities as 1 year of chemistry.

Alignment to the Iowa Core Science Standards: HS-PS1 Matter and Its Interactions and HS-PS3 Energy.

**ANATOMY & PHYSIOLOGY**

SCI271 (Sem 1), SCI272 (Sem 2)

- **Duration:** year course
- **Credits:** 2
- **Open to:** sophomores, juniors, seniors
- **NCAA:** approved
- **Prerequisite:** Biology and instructor recommendation

This course is designed as an advanced biology course. It is intended to provide an elective credit for those students going into health related areas of study.

This course provides students with an in-depth understanding of the structure and function of the human body. It confronts medical issues and promotes a healthy lifestyle. A foundation in anatomical terminology, laboratory techniques and utilization of reference materials are parts of the course of study. Required dissection of the fetal pig is a major part of the course work.

Alignment to NICC Anatomy Lab Standards: Instruction and experimentation in microscopy and dissection, with emphasis on the atomic, cellular, tissue and organ system levels of organization focusing on the human physiology including neurophysiology, respiratory physiology, lymphatic and immune functions, digestive physiology, and cardiovascular physiology.
###霍兰德物理学

**SC1331 (Sem 1), SC1332 (Sem 2)**  
**持续时间:** 学期课程  
**学分:** 2  
**面向:** 大二、大三、大四学生  
**先修:** B- 或更高在荣誉课程；代数 II 或荣誉/GT 校务委员推荐；同时 在荣誉预微积分

此课程专为渴望更高水平物理课程知识的学术上优秀的学生设计。这门课程提供了概念背景以及所需知识和技能，以解释世界运行的原理。课程内容包括：运动学，力和相互作用，波。概念的表述将得到强调。

###高级 Placement 生物

**SC1531 (Sem 1), SC1532 (Sem 2)**  
**持续时间:** 学期课程  
**学分:** 2  
**面向:** 大二、大三、大四学生  
**先修:** 生物学、PS9 化学 (荣誉), 基于教师推荐

此课程旨在与大学的入门级生物学课程相当，通常由生物学专业学生在第一年学习。课程的目的是让学生理解化学原理以及他们的分析和解决问题的能力。实验室实验通过使用新技术和设备来增强这些目标，同时也通过科学方法和实验来提高学生的理解。

###高级 Placement 化学

**SC1561 (Sem 1), SC1562 (Sem 2)**  
**持续时间:** 学期课程  
**学分:** 2  
**面向:** 大二、大三、大四学生  
**先修:** 基于教师推荐

此课程旨在与大学的入门级化学课程相当，通常由化学专业学生在第一年学习。课程的目的是让学生理解化学原理以及他们的分析和解决问题的能力。实验室实验通过使用新技术和设备来增强这些目标，同时也通过科学方法和实验来提高学生的理解。

###法医

**SC1602**  
**持续时间:** 学期课程  
**学分:** 1  
**面向:** 大二、大三、大四学生  
**先修:** PS9 化学 (荣誉), PS9 物理 (荣誉), 生物学 (荣誉)

此课程旨在为对生物学和古生物学感兴趣的学生提供选修学分。课程内容包括指纹识别、毛发分析、物证检查等方面。课程通过提高学生的分析和解释能力来确保学生的学习。

###环境保护与实验室

**SC1603**  
**持续时间:** 学期课程  
**学分:** 1  
**面向:** 大二、大三、大四学生  
**先修:** 第二代全球科学 (荣誉)

此课程旨在为期待在环保领域有所作为的学生提供丰富的知识背景。课程内容包括自然资源、生物多样性、空气、水和土壤资源、能源和矿物资源。课程将学院、研究机构和人类与环境之间的关系作为重点。

###NICC 并行学院课程 (ENV:115, ENV:116)

此课程旨在为学生提供丰富的环保知识和背景。课程内容包括自然资源、生物多样性、空气、水和土壤资源、能源和矿物资源。课程将学院、研究机构和人类与环境之间的关系作为重点。

**评论:** 这是一门并行学院课程。在高中获得学分的学生将获得 4 个 NICC 学分。
OUTDOOR ECOLOGY

SCI651

DURATION: semester course
CREDITS: 1
OPEN TO: juniors and seniors
PREREQUISITE: Biology (or Honors) and completion or simultaneous enrollment in Next Gen Global Science (or Honors)

This course is designed as an advanced science course. It is intended as an elective credit for students who have an interest in environmental conservation of land and water resources of the Midwest. Topics of study will include principles of ecology, how living organisms survive and interact in an ecosystem, human impact on land and water, and designing solutions to Midwest conservation issues. Other topics of study may include terrestrial and aquatic ecosystems, wildlife, fisheries, and nature preserves. Labs, modeling, research, mathematic modeling, and projects will be used to explore these topics.


SOCIAL STUDIES COURSES

SOCIAL STUDIES COURSE PROGRESSION

World History (S1 + S2)
Advanced Placement World History (S1 + S2)
U.S. History To 1877 (S1) CE
U.S. History Since 1877 (S2) CE
Advanced Placement U.S. History (S1 + S2)
American Government (S1 or S2)
Advanced Placement American Government (S2)
Sociology (S1 or S2)
Psychology (S1 or S2)
Advanced Placement Psychology (S1)
Developmental Psychology (S1 or S2) CE

MAY BE TAKEN FOR WORLD CULTURES OR ELECTIVE CREDIT(S)
World Cultures and Geography (S1 + S2)
Advanced Placement Human Geography (S1 + S2)

MAY BE TAKEN FOR ELECTIVE CREDIT(S)
Advanced Placement Economics (S1 + S2)
Educational Psychology (S1 or S2) CE

CE = CONCURRENT ENROLLMENT

CREDITS REQUIRED FOR GRADUATION
2 credits are required for graduation from the Dubuque Community School District. Credits earned beyond the requirement are automatically counted as Elective credits.

WORLD HISTORY

SOC221 (Sem 1), SOC222 (Sem 2)

DURATION: year course
CREDITS: 2
OPEN TO: sophomores
NCAA: approved
PREREQUISITE: none

World History is a year-long, two-credit course. The student will study in depth the societies, themes and issues that mark the interaction of the world and will focus on the diversity of the human experience. This course covers the ideas and institutions that have shaped our modern world. Students focus in depth on the world’s history in both hemispheres from the Industrial Revolution to the present. Units of study will focus on interactive lessons dealing with Africa, Europe, Asia, the Middle East, and the Americas and their interconnectedness.

Emphasis in this course will be placed on content mastery, literacy skills, and inquiry-based thinking. The general format of the class will include use of historical thinking skills and analysis of primary and secondary texts in addition to inquiry-based discussion and writing assessments.

Alignment to the Iowa Core Curriculum: Instruction, learning, and assessment are built on the 9-12 Social Studies Inquiry Standards, 9-12 World History Standards, and the 9-10 Reading and Writing Standards for History/Social Studies.