

**PROJECT LEAD THE WAY (PLTW) (CONT)**

Subject	Course Numbers	Units per course	Grade level offered				Prerequisites and related information
			9	10	11	12	
*Civil Engineering & Architecture (CEA)	169521 /169522	1		X	X	X	Geometry and Introduction to Engineering Design
*Computer Integrated Manufacturing (CIM)	162751 /162752	1			X	X	Introduction to Engineering Design and Principles of Engineering

**Introduction to Engineering Design (IED) (160313/160314)** Students use a problem-solving model to improve existing products and invent new ones. They learn how to apply this model to solve problems in and out of the classroom. Using sophisticated three-dimensional modeling software, students communicate the details of the products. Emphasis is placed on analyzing potential solutions and communicating ideas to others. **This is a dual credit/college course. Students may have the opportunity to receive 3 credit hours at the U of I, ISU, or EICCD.**

**Principles of Engineering (POE) (162612/162613)** This course explores the wide variety of careers in engineering and technology and covers various technology systems and manufacturing processes. Using activities, projects, and problems, students learn first-hand how engineers and technicians use math, science, and technology in an engineering problem-solving process to benefit peoples. The course also addresses concerns about social and political consequences of technological change. **This is a dual credit/college course. Students may have the opportunity to receive 3 credit hours at the U of I, ISU, or EICCD.**

**Civil Engineering and Architecture(CEA) (169521/169522)** This course is an overview of civil engineering and architecture. CEA emphasizes the inter-relationship and mutual dependence of both fields. Students use state-of-the-art software to solve real world problems and apply knowledge to hands-on projects and activities. By developing and implementing plans for a playground/park or vacation home, for example, students experience first-hand the job responsibilities of architects and civil engineers. By the end of the course, students are able to give a complete presentation to the client, including three-dimensional renderings of buildings and improvements, zoning and ordinance constraints, infrastructure requirements, and other essential project plans. **This is a dual credit/college course. Students may have the opportunity to receive 3 credit hours at the U of I, ISU, or EICCD.**

**Computer Integrated Manufacturing (CIM) 162751/162752** Students take the three-dimension modeling software skills learned in Introduction to Engineering Design to a whole new level. Using a three-dimensional model, students use automation, control systems, sensing devices, computer programming and robotics to efficiently mass produce products. Trouble-shooting is emphasized throughout the course. **This is a dual credit/college course. Students may have the opportunity to receive 3 credit hours at the U of I, ISU, or EICCD.**

**SCIENCE**

Subject	Course Numbers	Units per course	Grade Level Offered				Prerequisites and Related Information
			9	10	11	12	
Investigative Biology (2-term course)	171121 /171122	1	X	X	X	X	None
Molecular Biology (2-term course)	171131 /171132	1	X	X	X	X	None
Environmental Studies I	175111	0.5		X	X	X	Molecular or Investigative Biology
Environmental Studies II	175121	0.5		X	X	X	Environmental Studies I
Invertebrate Zoology	171411	0.5		X	X	X	Molecular or Investigative Biology
Vertebrate Zoology	171442	0.5		X	X	X	Invertebrate Zoology
Anatomy & Physiology	171311 /17312	1		X	X	X	Molecular or Investigative Biology
Forensics Science	174221	1		X	X	X	Chemistry or Physical Science
Genetics	171431	0.5		X	X	X	Molecular Biology required and General Chemistry suggested
AP Biology (3-term course)	171511 /171512 /171513	1.5		X	X	X	Molecular or Investigative Biology and General Chemistry
Earth Materials	170121	0.5		X	X	X	None
Weather, Climate and Space	170122	0.5		X	X	X	None
Meteorology	170131	0.5		X	X	X	Weather, Climate & Space and Algebraic Principles or Teacher Approval
General Chemistry (2-term course)	172111 /172112	1		X	X	X	Molecular or Investigative Biology and Algebra required.
Advanced Chemistry	172331	0.5		X	X	X	Successful completion of General Chemistry and Algebra 2 required. Physics is strongly recommended.

## SCIENCE (CONT)

Subject	Course Numbers	Units per course	Grade Level Offered				Prerequisites and Related Information
			9	10	11	12	
<b>AP Chemistry</b> (3-term course)	172511 /172512 /172513	1.5		X	X	X	Successful completion of General Chemistry and Algebra 2 required. Physics is strongly recommended.
<b>Physical Science</b> (2-term course)	170311 /170312	1		X	X	X	Molecular or Investigative Biology and successful completion of Algebra
<b>Physics</b> (2-term course)	173111 /173112	1		X	X	X	Completion of Geometry with a “C” or higher required or Teacher Approval
<b>INDEPENDENT COURSES</b>							
<b>Directed Independent Study (DISS)</b>	179921 /179922	0.5	X	X	X	X	One year of high school science may be taken concurrently
<b>Science Laboratory Assistant</b>	179331 /179332	0.5			X	X	Successful completion of a 2-term course in biological or physical science. Supervising Science teacher recommendation required.

The Science offerings at Davenport high schools provide unique learning experiences dealing with the technology and understandings necessary for survival in a changing society. These course offerings are designed and arranged to allow student movement from a basic general level to one which provides a broader and deeper experience in the sciences.

**Investigative Biology (171121/171122)** This two-term course uses a systems approach to biology that emphasizes basic biological themes and the relationships among living things. Laboratory activities are designed to prepare scientifically literate citizens. There is an additional fee for materials.

**Molecular Biology (171131/171132)** This two-term course emphasizes the investigation of principles, lab procedures, and other applications associated with the study of life sciences. The concepts of study include: scientific method and inquiry, organic molecules, cellular processes, DNA and genetics, evolution, and ecology. There is an additional fee for materials.

**Environmental Studies I (175111)** This one-term course explores bioethics, ecological concepts, population dynamics, and those economic values used in developing environmental regulations and policies. Students’ experiences include exploring the Internet, cooperative learning, and use of computer simulation, communicating research findings, performing experiments, and exploring career opportunities in environmental technology.

**Environmental Studies II (175121)** This one-term course explores various sources of and solutions to environmental pollution, use of natural resources, energy production and alternatives, environmentally sustainable lifestyles, and those economic values used in developing environmental regulations and policies. Students’ experiences include exploring the Internet, cooperative learning, and use of computer simulation, communicating research findings, performing experiments, and exploring career opportunities in environmental technology.

**Invertebrate Zoology (171411)** This one-term course provides students with the detailed study of and laboratory activities involving animals without a backbone. An emphasis is placed on animal development, relationships, structures, behavior and natural history.

**Vertebrate Zoology (171412)** This one-term course provides students with the detailed study of and laboratory activities involving animals with backbones and more advanced invertebrates. An emphasis is placed on the physical characteristics and adaptations, habitat, nutritional needs, lifestyles, and the diversity within each of the five vertebrate groups.

**Anatomy & Physiology I (171311/171312)** This two-term course is a systematic study of the functions and processes of the human body emphasizing the organization of the body; systems that cover, support, and move the body; the systems that control and regulate the body through communication; the systems that transport and protect the body, the metabolic processing systems, and the systems of reproduction and development. Laboratory investigations and group activities are used to enhance understanding.

**Forensics Science (174221)** This one-term course explores the history of forensic science, methods of investigating a crime scene, types of evidence, analysis of fingerprints, hair, fibers, drugs, glass, soil, and blood. There is an additional fee for materials.

**Genetics (171431)** This one-term course investigates the principles, lab methodology, and applications associated with the study of inheritance of traits. This course provides students an opportunity to explore current techniques and research in genetics, including the Human Genome Project, genetic screening, gene therapy, and environmental influences.

**AP Biology (171511/171512/171513)** This three-term course emphasizes in-depth studies and laboratory experiences. Current biological science research and literature about topics such as biotechnology and molecular genetics are studied. Students are provided an opportunity to conduct labs on a regular basis. Students are strongly encouraged to take the National CEEB Advanced Placement Exam.

**Earth Materials (170121)** This one-term course is an investigation into earth history and the natural chemical and physical processes affecting the earth.

## SCIENCE (CONT)

**Weather, Climate & Space (170122)** This one-term course is an investigation of the factors which influence earth's weather and climate, and how we use those factors in weather forecasting. The science involved in space exploration, including the principles of astronomy, is one of the special features of this course.

**Meteorology (170121)** This one-term course introduces many aspects of meteorology including the mechanics of weather, the chemistry of weather, the impact of weather, and forecasting. It helps students understand the fast-moving world of meteorology and allows them to look far beyond the basic TV news descriptions and to develop the ability to forecast the weather using very simple techniques.

**General Chemistry (172111/172112)** This two-term course is a laboratory-oriented approach to the entry-level study of chemistry. Basic laws, theories, and relationships of unit analysis; structure of matter and energy; periodic law; chemical nomenclature; chemical reactions; kinetic molecular theory; the mole concept and solutions are topics of study. Completion of this course provides a critical thinking background and a basic understanding of the principles of chemistry. There is an additional fee for materials. Goggles are required for this course. They must meet ANSI Z87.1-1989 standards and are available for purchase in the Activities Office.

**Advanced Chemistry (172331)** This one-term course is designed to prepare students for the rigor of College Chemistry and/or AP Chemistry. Special emphasis is placed on lab techniques, problem solving skills, and critical analysis of chemistry concepts that are useful in other physical, biological, and applied sciences such as medicine, engineering, agriculture, and consumer sciences. There is an additional fee for materials. Goggles are required for this course. They must meet ANSI Z87.1-1989 standards and are available for purchase in the Activities Office.

**AP Chemistry (172511/172512/172513)** This three-term course is a rigorous and academically challenging college level course. Topics covered in General Chemistry are expanded upon and, new areas of study such as Equilibrium, Electrochemistry and Nuclear Chemistry are introduced. These concepts are developed into increasingly sophisticated ideas that are useful in other physical, biological, and applied sciences such as medicine, engineering, agriculture, and consumer sciences. The class provides students a wide opportunity to develop and improve their problem solving and investigative skills. Students are strongly encouraged to take the National CEEB Advanced Placement Exam. There is an additional fee for materials. Goggles are required for this course. They must meet ANSI Z87.1-1989 standards and are available for purchase in the Activities Office.

**Physical Science (170311/170312)** This two-term course is an investigation into physics and finding the simplest and least complicated explanation for things. Through laboratory experiences, students observe how things work and find connections between cause and effect that explains why things work. There is an additional fee for materials.

**Physics (173111/173112)** This two-term course is an investigation of matter and energy with a laboratory centered emphasis on the basic laws and theories related to mechanics, light, sound, and electricity. There is an additional fee for materials.

### INDEPENDENT COURSES

**Directed Independent Study in Science (DISS) (179921/179922)** This course is designed for the science-able, inventive, interested student who wishes to pursue specialized study and research in science by developing a project of his or her own choosing. A student may enroll in this course for a total of eight terms.

**Science Laboratory Assistant (179331/179332)** This course emphasizes the technical role of an assistant in the biological/physical sciences with preparation of materials and supplies. It is an independent study experience for those students interested in technological opportunities.

## SOCIAL STUDIES

Subject	Course Numbers	Units per course	Grade Level Offered				Prerequisites and Related Information
			9	10	11	12	
<b>American Studies II</b> (2-term course)	272111 /272112	1	X				The 2 <sup>nd</sup> part of the American History sequence started in Grade 8
<b>GROUP I</b>							
<b>Contemporary American History</b>	272121	0.5		X	X	X	The 3 <sup>rd</sup> part of the American History sequence started in Grade 8
<b>Historical Viewpoints of Modern America</b>	272131	0.5		X	X	X	The 3 <sup>rd</sup> part of the American History sequence started in Grade 8
<b>GROUP II</b>							
<b>Early Western Civilization</b>	271311	0.5		X	X	X	
<b>Modern Western Civilization (since 1700)</b>	270711	0.5		X	X	X	None
<b>World Cultures</b>	271411	0.5		X	X	X	None
<b>Geography</b>	270121	0.5		X	X	X	None