Career Development & Occupational Studies

PART I.1

NOTE: This document is a work in progress. Parts II and III, in particular, are in need of further development, and we invite the submission of additional learning experiences and local performance tasks for these sections. Inquiries regarding submission of materials should be directed to: The Career Development & Occupational Studies Resource Guide, Room 681 EBA, New York State Education Department, Albany, NY 12234 (tel. 518-474-5922).

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Best Practice: What Research Tells Us

Research that both informs and is informed by practice can have a powerful effect on teaching and learning. The following factors have been consistently identified in the professional literature as having a positive influence on achievement in career development and occupational studies and are therefore likely to foster achievement of the State standards.

Learner Centered Classroom

Authentic pedagogy "emphasizes teaching that requires students to think, to develop in-depth understanding, and to apply academic learning to important, realistic problems."

Teachers focus on more challenging and exciting ways for students to construct, use, and generate their own knowledge.

Work-Based Learning

Workplace experiences can provide the setting for addressing authentic problems and a clear connection to "value outside the classroom." Using the workplace to teach academic skills can also be a motivational tool for students, showing them how their academic skills can be used outside of the classroom.

Universal Foundation Skills

Students who will enter the workforce of the future will perform at higher levels when they have acquired the foundation skills. This set of skills is perceived as important for improving student performance and developing more positive attitudes and behaviors; deficits in the foundation skills are associated with poorer overall performance.

Changing Nature of Work

New forms of work organizations cause shifts in the types of skills required by their employees. These new skills are not occupation specific but are broader and more general, mainly involving interpersonal and problem solving capabilities as well as the need for teamwork among project-based groups.

Interactive Learning

Learning in which children and young people are involved in thinking about, writing about, and talking about their learning produces far more effective growth than instruction in which they are passive.

Adapted from: Squire, James A. "Chapter 6a. Language Arts." *Handbook of Research on Improving Student Achievement,* (Ed., Gordon Cawelti). Arlington, VA: Educational Research Services, 1995.

Source: Murnane, Richard J. and Frank Levy. *Teaching the New Basic Skills: Principles for Educating Children to Thrive in a Changing Economy*. New York: Martin Kessler Books, 1996.

Source: Bailey, Thomas and Donna Merritt. *School-to-Work for the College Bound*. Teachers College, Columbia University and National Center for Research in Vocational Education, University of California at Berkley.

Source: Learning a Living*: ABlueprint for High Performance: AScans Report for America 2000*. US Department of Labor, 1992.

Characteristics of Today's and Tomorrow's Workplace

Traditional Model	High Performance Model
STRATEGY	
• Mass production • Long production runs • Centralized control	• Flexible production • Customized production • Decentralized control
PRODUCTION	
• Fixed automation • End-of-line quality control • Fragmentation of tasks • Authority vested in supervisor	• Flexible automation • On-line quality control • Work teams, multi-skilled workers • Authority delegated to worker
HIRING AND HUMAN RESOURCES	
• Labor-management confrontation • Minimal qualifications accepted • Workers as a cost	• Labor-management cooperation • Screening for basic skills abilities • Workforce as an investment
JOB LADDERS	
• Internal labor market • Advancement by seniority	• Limited internal labor market • Advancement by certified skills
TRAINING	
• Minimal for production workers • Specialized for craft workers	• Training sessions for everyone • Broader skills sought
CONTENT	
• Teacher assigns topics • Text reveals everything discovered	• Ill-defined problems are worked through • Text tells what the reader needs to know
LOGIC	
• Theoretical; "academic."	• Problem-solving, pragmatic, goal-oriented
CORRECTNESS	
• Usage, handwriting, spelling, and punctuation are a focus for evaluation, accounting for 50-100% of a document's value.	• Same factors are a given, not a focus for evaluation.

Source: *"Competing in the New International Economy."* Washington, DC: Office of Technology Assessment, 1990. (Developed by Fort Worth Public Schools, Fort Worth, TX.)

New York State Employer Survey of Workplace Skills

The New York Association of Employment and Training Professionals (NYATEP) conducted a survey of over 2,500 employers throughout New York State to identify the workplace skills and competencies that employees must either have prior to beginning employment or will need to advance in their occupation. The chart which follows ranks the top 10 responses from the New York State Employer Survey.

Analysis of Data *Must Know to Begin/Must Know to Advance*	*Percent Responses Statewide*
1. Foundation Skills: Personal Qualities Can be trusted; recognizes when faced with making honest/dishonest decisions based on values; understands the impact of violating organizational beliefs and chooses an ethical course of action.	97.4
2. Competencies: Interpersonal Skills Works cooperatively with others.	94.4
3. Foundation Skills: Personal Qualities Demonstrates understanding of personal appearance (i.e., clean clothing/uniform) and hygiene (e.g., washed and styled hair, clean teeth) appropriate for industry/company policy; wears appropriate clothing/uniform and maintains personal hygiene regularly.	93.7
4. Foundation Skills: Basic Skills Receives, interprets, and responds appropriately to verbal messages and other clues such as body language: (e.g., to comprehend, to learn, to critically evaluate, to appreciate, or to support the speaker.	88.3
5. Foundation Skills: Personal Qualities Demonstrates understanding, friendliness, adaptability, empathy, and politeness in new and ongoing group settings; asserts self in familiar and unfamiliar social situations.	87.6
6. Foundation Skills: Personal Qualities Exerts a high level of effort and perseverance toward goal attainment; works to become excellent at doing tasks even when assigned an unpleasant task.	85.7
7. Foundation Skills: Personal Qualities Believes in own self-worth and maintains a positive view of self; demonstrates knowledge of own skills and abilities.	83.5
8. Foundation Skills: Basic Skills Communicates thoughts and key information in writing; records information completely and accurately.	82.0
9. Foundation Skills: Basic Skills Organizes ideas and speaks clearly; communicates appropriately to listeners and situations; participates in conversations, discussion, and group presentations; asks questions when needed.	81.1
10. Competencies: Interpersonal Skills Exhibits appropriate behavior when dealing with clients.	80.6

Suggested Scope and Sequence for Career Development and Occupational Studies

The following Scope and Sequence reflects a synthesis of the skills, concepts, and competencies embedded in the State standards. The Scope and Sequence for Standard 1, Career Development; Standard 3A, the Universal Foundation Skills; and Standard 3B, Career Majors, are arranged by level of achievement and do not necessarily correlate to grade levels.

Performance indicators for each standard appear in bold print. The skills and competencies cited describe the instructional content embedded in each performance indicator. The descriptors are not meant to be an exhaustive list.

Ascope and sequence for Standard 2, Integrated Learning, and the career major area of Arts/Humanities has not been included. Examples of connections between classroom instruction and the workplace (Standard 2) are found in the Integrated Learning section of Part 1. The performance indicators for the Arts/Humanities career major are in draft form and will continue to be refined. Once refinement is complete, a scope and sequence section will be developed.

> *. . .Vocational education, including guided work experience, is for all students, not just an alternative to academic studies for the less academically oriented. I want the college-bound student to include vocational studies too, just as I want to be sure that students not going to college secure a balanced program in academic subjects. . . . The issue is. . . what kind of education contributes most to economic competence and satisfaction in work and life.*
>
> John I. Goodlad. *A Place Called School*

Developed by: Ad Hoc Committee to Prepare a Model Scope and Sequence for Career Development and Occupational Studies, 1997.

Standard 1 — Career Development

Elementary

1. Students will:

Begin a career plan that would assist in the transition from school to eventual entry into a career option.

- Awareness of career options
- Work and careers in the community
- Career clusters in occupations in the community
- Planning and goal setting techniques
- Personal characteristics and academic skills relevant to specific careers
- Use of a career portfolio

Demonstrate an awareness of their interests, aptitudes, and abilities.

- Learning styles
- Positive characteristics about self
- Personal likes and dislikes
- Individual talents and interests
- Strengths and weaknesses
- Personal development plan to strengthen areas in need of improvement
- Career clusters related to interests, aptitudes, and abilities

Know the value of work to the individual and society in general.

- Types of work (paid, unpaid)
- Work ethic
- Needs versus wants
- Relationship of needs/wants to financial resources
- Circular flow of money
- Importance of effort and practice
- Relationship of lifestyle to work and careers
- Value of work at home and workplace
- Relationship of ability, effort, and achievement
- Workplace behavior

Describe the changing nature of the workplace brought about by global competition and technology.

- Value of lifelong learning due to technological changes
- Impact of technology on the workplace
- Effects of global competition on the workplace
- Careers affected by global economy
- Careers created by global economy and technological advances
- Strategies to manage change
- Types of economies:
  - agrarian
  - industrial
  - technological

Explore their preferences for working with people, information, and/or things.

- Work characteristics:
  - inside/outside work
  - work alone or with people
  - management and responsibility
  - being the boss or reporting to others
  - making decisions
  - hectic/noisy or quiet/calm atmosphere

- ❍ physical labor
- ❍ sedentary work
- ❍ high-risk work
- ❍ helping others
- ❍ designing/creating things
- ❍ taking work home

- Changing roles of men and women
- Various occupations and tasks
- Skills for success in the workplace:
  - ❍ motivation
  - ❍ personal fitness/hygiene
  - ❍ respect for self, others, diversity
  - ❍ teamwork
  - ❍ flexibility
  - ❍ leadership
  - ❍ self-management
  - ❍ honesty, integrity
  - ❍ time on task
  - ❍ quality of work
  - ❍ continuous improvement
  - ❍ accept constructive criticism
  - ❍ conflict management
  - ❍ stress management
  - ❍ cooperation
  - ❍ mediation skills
  - ❍ punctuality
  - ❍ dependability
  - ❍ social skills
  - ❍ persistence
  - ❍ resourcefulness
  - ❍ pride
  - ❍ assertiveness
  - ❍ tolerance
  - ❍ reliability
- Techniques for exploring preferences for working with information, people, and/or things
- Careers related to working with information, people, and/or things:
  - ❍ advantages
  - ❍ disadvantages
- Working for someone else versus being self-employed

Demonstrate understanding of the relationship of decision-making to the attainment of future goals.

- Steps in decision-making process to accomplish goals
- Strategies used in making decisions
- Role of beliefs and attitudes in decision-making process
- Consequences of making decisions
- Learning from mistakes
- Relationship between school success and job success

Describe the changing roles of men and women at home and in the workplace.

- Value of work in the home and workplace
- Roles of student, worker, family member
- Nontraditional roles and occupations
- Changing work environment:
  - ❍ role of teams
  - ❍ downsizing
  - ❍ flat organizations

> *Career development has become increasingly important in recent years due to changes in the economy, technology, and attitudes of employers and employees. Career development must be a comprehensive, systematic, and sequential program available to all youth and adults throughout the life span.*
>
> National Occupational Information Coordinating Committee (NOICC)
> *National Career Development Guidelines—Local Handbook for Elementary Schools*

Standard 1 — Career Development

Intermediate

1. Students will:

Continue development of a career plan that would assist in the transition from school to eventual entry into a career option of their choosing.

- Sources of employment information
- Strategies to explore career options
- Awareness of high school options
- Techniques of assessing personal strengths and weaknesses
- Careers that complement personal and academic strengths
- Job descriptions within a career area
- Techniques to set and revise goals
- Transferable skills relative to career options
- Learning/thinking skills necessary for career choice
- Entrepreneurial skills

Demonstrate an understanding of the relationship among personal interests, skills and abilities, and career research.

- Resources for career research
- Techniques to classify occupations
- Relating likes and dislikes to career options
- Techniques for matching personal and academic strengths with careers
- Strategies for self-improvement
- Decision-making techniques

Understand the relationship of personal interests, skills, and abilities to successful employment.

- Relationship of home, school, and community experiences to a career/work selection
- Various definitions of successful employment
- Strategies to improve upon talents and skills
- Techniques to pursue areas of interest
- Importance of successful employment to the economy and individual
- Relationship between interests and career success
- Characteristics of successful employees

Demonstrate an understanding of the relationship between the changing nature of work and educational requirements.

- Changing skills and tasks relative to various careers
- Educational requirements for various careers
- Importance of lifelong learning
- Relationship between educational achievement and career success
- Changing composition of the work force
- Employment trends
- Job analysis/description

Understand the relationship of personal choices to future career decisions.

- Steps in the decision-making process to explore career options
- How personal choices affect career decisions
- Factors that affect career decisions positively and negatively
- Relationship of lifestyle to career choices
- Strategies for overcoming career obstacles
- Types of personal decisions:
  - self
  - home
  - school
  - work
- Goal-setting techniques

> *The purpose of career exploration is not to force high school students to make irrevocable choices about future occupations but to give young people a chance to think systematically about what might interest them and give them realistic labor market information.*
>
> Thomas Bailey and Donna Merritt
> Institute of Education and the Economy
> Teachers College, Columbia University

Standard 1 — Career Development

Commencement

1. Students will:

Complete the development of a career plan that would permit eventual entry into a career option of their choosing.

- Techniques for researching postsecondary and employment opportunities:
  - library
  - Internet
  - networking
- Sources of financial assistance
- Relationship between short-term and long-term goals
- Marketing strategies
- Action plan
  - goals chart
  - self-improvement plan
  - postsecondary plans
  - job analysis chart
- Planning for lifelong learning
- Resources for exploring and improving occupational choices
- Procedures for developing a resume
- Skills to assess occupational opportunities

2. Students will:

Apply decision-making skills in the selection of a career option of strong personal interest.

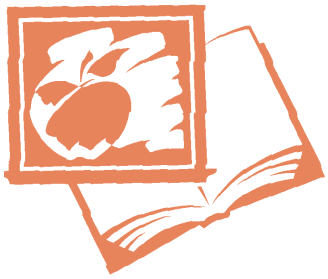
- Decision-making techniques
- Process to structure high school courses according to career interests
- Steps in the decision-making process to select a career option of interest
- Steps to acquire employment, enter postsecondary study, or both
- Labor market/employment data

3. Students will:

Analyze skills and abilities required in a career option and relate them to their own skills and abilities.

- Process to evaluate skills required in various careers
- Assessment of personal skills and abilities required for success in identified careers
- Matching skills and abilities to career choices
- Compare education with job and postsecondary opportunities

Standard 3a — Universal Foundation Skills



Elementary

1. Basic Skills

Students will:

Listen to and read the ideas of others and express opinions both orally and in writing; use basic mathematical concepts and computations to solve problems.

- Reading:
  - recognize and comprehend basic words used in prose and documents
  - determine the main idea or message
  - recognize sentence structure and punctuation
  - use context to grasp meaning of unfamiliar words
  - understand vocabulary used in the world of business
  - comprehend multi-step written directions and apply them in proper sequence

- Writing:
  - communicate thoughts, ideas, and information in written form
  - use correct grammar, spelling, punctuation, and sentence structure
  - write legibly with recognizable words
  - engage in pre-writing, organizing, drafting, and revising to present information in logical order
  - write with purpose
  - support opinions by providing detail

- Listening and speaking:
  - demonstrate attention, concentration, and courtesy
  - contribute to discussion
  - avoid interrupting
  - begin to paraphrase
  - take accurate messages
  - follow simple directions
  - convey basic directions to others
  - recall specific details
  - describe situations or problems accurately
  - distinguish between facts and opinions
  - express opinions
  - respond to body language
  - ask pertinent questions

- Math operations:
  - add, subtract, multiply, and divide whole numbers, fractions, and decimals
  - use a calculator accurately
  - select the correct operation to solve a problem
  - explain the relationship between two or more things
  - recognize chance events
  - define chance events in terms of ratio or percent
  - collect, sort, and classify data for statistical purposes
  - calculate basic statistical data
  - present data in chart, graph, diagram, or table format
  - arrange units of measure in order of size
  - understand length, width, volume, capacity, weight, area, temperature, angles, and other units of measurement

2. Thinking Skills

Students will:

Use ideas and information to make decisions and solve problems related to accomplishing a task.

- Use effective decision-making and problem-solving processes:
  - recognize problem
  - identifiy options
  - establish criteria
  - weigh options based on criteria
  - determine rationale for decision
  - evaluate decision
- Apply techniques for evaluating usefulness of data
- Use imagination to solve problems
- Estimate prior to reaching a decision
- Adapt "old" knowledge to new situations
- Process graphs, symbols, pictures, etc. into language
- Make effective use of basic logic
- Do creative thinking
- Use brainstorming techniques
- Analyze and interpret instructions in oral, written, or other forms

3. Personal Qualities

Students will:

Demonstrate the personal qualities that lead to responsible behavior.

- Value of effort and perseverance to reach goals
- Importance of optimism and enthusiasm to completing a task
- Positive and negative attitudes and personality traits
- Importance of attendance and punctuality
- Ethical behavior in an organization
- Value of responsible behavior to an organization or team
- Positive work ethic
- Integrity of individuals in an organization

4. Interpersonal Skills

Students will:

Relate to people of different ages and from diverse backgrounds.

- Conflict resolution
- Mediation
- Cooperative learning techniques
- Working as a team
- Workplace communications skills
- Leadership
- Different cultures
- Stereotypes and prejudices

5. Technology

Students will:

Demonstrate an awareness of the different types of technology available to them and of how technology affects society.

- Simple troubleshooting techniques
- Awareness of technology in the home, school, work, and community
- Use of computer as a tool:
  - word processing
  - data bases
  - spreadsheets
  - graphics
  - gathering and organizing data/information (software, Internet)
  - presentations
  - accomplishing/speeding up work
  - revolutionizing the workplace
- Impact of technology on present and future life:
  - home
  - school
  - work
  - community

6. Managing Information

Students will:

Describe the need for data and obtain data to make decisions.

- Techniques to acquire data:
  - library skills
  - Internet
  - survey, tally
  - interviewing
  - recording
  - note taking
  - outlining
- Organization of data
- Documentation of data
- Informed decision making
- Process to create data

7. Managing Resources

Students will:

Demonstrate an awareness of the knowledge, skills, abilities, and resources needed to complete a task.

- Planning strategies:
  - written description of task
  - steps needed for completion
  - resources needed:
    - time
    - people
    - materials
  - possible problems
  - creative solutions
  - improving the plan
- Techniques to acquire, use, and manage resources

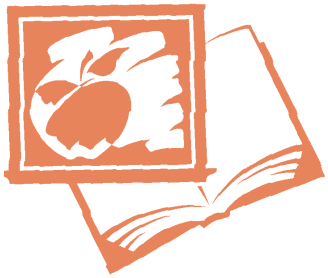
8. Systems

Students will:

Demonstrate understanding of how a system operates and identify where to obtain information and resources within the system.

- Definition of a system
- Roles of people within a system:
  - individual
  - worker
  - consumer
- Understanding basic systems in their lives:
  - social systems
  - technological systems
  - organizational systems
- System organization in relationship to goals
- Procedures within a system
- Formal and informal codes

Standard 3a — Universal Foundation Skills



Intermediate

1. Basic Skills

Students will:

Listen to and read the ideas of others and analyze what they hear and read; acquire and use information from a variety of sources; and apply a combination of mathematical operations to solve problems in oral or written form.

- Reading:
  - interpret written information from a variety of sources
  - read manuals and apply content
  - recognize significance of information
  - make generalizations
  - apply information from one context to other contexts
  - use a limited range of criteria to evaluate
  - assess the accuracy, validity, and significance of written information
- Writing:
  - make use of diverse grammatical structures, vocabulary, and style
  - write in a wide range of forms
  - use the proper conventions and structure for purpose and audience
  - use standard English skillfully
  - write cohesive paragraphs
  - use logical sequence in writing
  - use vocabulary and grammar skillfully as a communication tool
  - write to examine assumptions from different perspectives
- Listening and speaking:
  - obtain and recall essential information from oral communications
  - determine significance of new information
  - make generalizations and draw conclusions
  - express ideas for group consideration
  - incorporate ideas from other members
  - present information clearly and logically
  - voice evaluations of oral presentations or written text by referring to specific criteria
- Math operations:
  - check solutions to problems for rationality
  - combine addition, subtraction, multiplication, or division to solve narrative problems
  - use relationships to reach conclusions
  - use simple probability
  - compare experimental and theoretical probability
  - do statistical analysis of trends and relationships
  - analyze and examine relationships among statistical data
  - choose and use proper measuring devices
  - apply proper conversions for length, volume, time, etc.

2. Thinking Skills

Students will:

Evaluate facts, solve advanced problems, and make decisions by applying logic and reasoning skills.

- Use effective decision-making and problem-solving processes
- Use process of combining ideas and information
- Discover underlying rules and principles used for problem-solving and decision-making
- Find relationships among different variables
- Interpret instructions in oral, written, or other forms
- Use probability and logic to draw conclusions

3. Personal Qualities

Students will:

Demonstrate an understanding of the relationship between individuals and society and interact with others in a positive manner.

- Adapt to changing conditions
- Use a process to set priorities
- Receive positive and negative criticism
- Demonstrate appropriate group behavior
- Self-evaluate knowledge, skills, and abilities
- Have a personal improvement plan
- Be assertive in unfamiliar surroundings
- Monitor goals
- Be a self-starter

4. Interpersonal Skills

Students will:

Demonstrate the ability to work with others, present facts that support arguments, listen to dissenting points of view, and reach a shared decision.

- Human relations skills
- Proper debating behaviors
- Reaching consensus
- Team-building activities
- Methods to challenge procedures, policies, and authorities
- Methods of teaching others
- Evaluating and providing feedback
- Motivating techniques

5. Technology

Students will:

Select and use appropriate technology to complete a task.

- Technology and the 21st century work force
- Technology for management of individuals, families, groups, etc.
- Technology and the changing economy
- Troubleshooting and routine maintenance
- Use of the computer as a tool to solve problems
- Limits of technology
- Costs of technological solutions

6. Managing Information

Students will:

Select and communicate information in an appropriate format (e.g., oral, written, graphic, pictorial, multi-media).

- Acquire, organize, analyze, and communicate information using computers
- Convert information into chosen format
- Arrange information in a meaningful order
- Aggregate and organize data into usable information
- Make decisions regarding accuracy and relevance of information
- Determine best format for communicating information

7. Managing Resources

Students will:

Understand the material, human, and financial resources needed to accomplish tasks and activities.

- Time management
- Money management
- Human and nonhuman resources
- Networking
- Allocating resources:
  - ❍ forecasting costs and revenues
  - ❍ prioritizing
  - ❍ scheduling
  - ❍ budgeting
  - ❍ acquiring, storing, and distributing material resources
  - ❍ assessing knowledge and skills required
  - ❍ identifying present and future workload

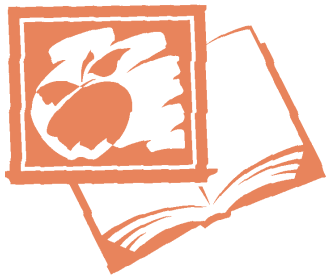
8. Systems

Students will:

Understand the process of evaluating and modifying systems within an organization.

- Social, organizational, and technological systems
- Predicting impact of decisions on system
- Recognizing trends
- Detecting deviations in the system
- Troubleshooting the system
- Process to improve system function
- Alternative system designs
- Process for system improvement

Standard 3a — Universal Foundation Skills



Commencement

1. Basic Skills

Students will:

Use a combination of techniques to read or listen to complex information and analyze what is heard or read; convey information confidently and coherently in written or formal form; and analyze and solve mathematical problems requiring use of multiple computational skills.

- Reading:
  - organize new information to support decisions
  - make generalizations and identify underlying concepts independently
  - apply information from one context to many
  - extract and synthesize information from many sources
  - use originality and insight to make generalizations and draw conclusions
  - assess information for significance
  - recognize cultural values in text and evaluate critically
  - infer and locate the meaning of unknown and technical vocabulary
  - judge the accuracy of reports, proposals, or ideas of others
- Writing:
  - use a wide range of writing styles effectively and appropriately
  - present information selectively and make independent decisions
  - write in unique and purposeful ways
  - display high levels of writing skills in areas of specialized knowledge
  - show originality in writing
  - manipulate vocabulary for pleasing or striking effects
  - use appropriate perspective based on the context
  - use creative and insightful strategies
  - compose and create documents (manuals, flow charts, graphs, reports, etc.)
- Listening and speaking:
  - influence group members through effective expression of ideas
  - adjust and expand ideas and opinions by listening to others
  - take initiative in structuring group discussion
  - use new information independently
  - select and organize information and present it clearly and logically
  - seek out and incorporate new information and synthesize that information for own purposes
  - make judgments about the most effective way to present information
  - use personal standards to assess a wide variety of oral presentations
  - use objective criteria for evaluating oral presentations
  - evaluate diverse and complex oral presentations
  - tolerate a wide range of assessments
- Math operations:
  - make generalizations that will apply to all similar data
  - use logic to create new situations using similar past relationships
  - use logic to predict outcomes based on similar relationships

- ❍ conduct an experiment to simulate an event over a number of trials
- ❍ evaluate predictions based on outcomes of a probability model
- ❍ use statistics to make inferences based on data
- ❍ use statistics to make decisions
- ❍ develop procedures for using measurement in job situations
- ❍ determine the unit of measure appropriate to the items being measured
- ❍ express mathematical concepts orally and in writing
- ❍ use charts, graphs, and tables to convey quantitative data

2. Thinking skills

Students will:

Demonstrate the ability to organize and process information and apply skills in new ways.

- ■ Apply decision-making and problem-solving processes in the execution of a plan:
  - ❍ devise and implement a plan
  - ❍ evaluate and monitor progress
  - ❍ based on findings, revise plan as necessary
- ■ Prepare flow charts, blueprints, recipes, etc. from narrative descriptions
- ■ Extract rules or principles from a set of objects or written text
- ■ Apply rules and principles to a new situation
- ■ Determine conclusion when given a set of facts
- ■ Apply principles to solve everyday problems
- ■ Interpret technical material
- ■ Assimilate a variety of information and draw conclusions

3. Personal Qualities

Students will:

Demonstrate leadership skills in setting goals, monitoring progress, and improving their performance.

- ■ Set goals for group, team, or organization
- ■ Accept and give constructive criticism
- ■ Monitor progress toward goal attainment
- ■ Motivate self through goal achievement
- ■ Exhibit self-control and respond to feedback unemotionally and nondefensively
- ■ Understand the impact of violating the beliefs and codes of an organization or team
- ■ Choose ethical course of action
- ■ Show awareness of impact of decisions on others
- ■ Devise a group, team, or organization improvement plan
- ■ Organize and manage work
- ■ Achieve maximum efficiency

4. Interpersonal Skills

Students will:

Communicate effectively and help others to learn a new skill.

- ■ Convey job information to allow others to see its applicability and relevance to tasks
- ■ Assess performance and provide constructive feedback/reinforcement
- ■ Propose and examine possible options
- ■ Make reasonable compromises
- ■ Deal effectively with objections
- ■ Use a variety of approaches for teaching a new skill
- ■ Demonstrate leadership qualities
- ■ Help others to apply related concepts and theories
- ■ Use active listening skills in a work situation
- ■ Handle complaints and conflict in a work situation

5. Technology

Students will:

Apply knowledge of technology to identify and solve problems.

- Judge which technology will produce the desired results
- Interpret and analyze output
- Detect errors from output
- Generate workable solutions to correct errors
- Maintain and troubleshoot technology
- Use a process to determine desired outcomes and applicable constraints
- Break down component parts and identify underlying principles
- Establish new hypotheses or a more complete body of information

6. Managing Information

Students will:

Use technology to acquire, organize, and communicate information by entering, modifying, retrieving, and storing data.

- Acquire, organize, analyze, and communicate information using presentation software
- Choose format for display (e.g., line graphs, bar graphs, tables, pie charts, narrative)
- Convert information to appropriate format
- Transform data into different formats to organize
- Determine when information must be created or edited
- Synthesize and integrate information from two or more sources
- Pose analytical questions to determine information needs
- Use advanced systems to retrieve and manipulate information

7. Managing Resources

Students will:

Allocate resources to complete a task.

- Evaluate and adjust a schedule
- Track extent to which actual costs and resources differ from budget and take appropriate action
- Transport, store, and distribute materials
- Manage projects over an extended period of time
- Match individual talents and workload
- Monitor performance and provide feedback
- Make decisions dependent on present and future resources
- Make decisions based on estimates
- Use appropriate accounting methods to track resources
- Utilize resources to reach maximum performance

8. Systems

Students will:

Demonstrate an understanding of how systems performance relates to the goals, resources, and functions of an organization.

- Develop networking skills and techniques
- Function within the formal and informal codes of an organization
- Troubleshoot a system to ensure quality of a product
- Modify system design based on relevant feedback
- Challenge the status quo to benefit the system
- Evaluate and improve the system
- Know the relationship of systems performance and organizational goals
- Develop new or alternative systems

Standard 3b — Career Majors

The National Standards for Business Education, developed and published by the National Business Education Association (1914 Association Drive, Reston, VA 22091, 703-860-8300) were used as a resource in the development of the scope and sequence outline which follows. New York State's standards/performance indicators for Business/Information Systems endorse and support the National Standards for Business Education.

usiness/Information Systems — Core

asic Business Understanding

dents will:

monstrate an understanding of siness, marketing, and multina- al economic concepts; perform siness-related mathematical computations; and analyze/inter- pret business-related numerical information.

- Business concepts/characteristics:
  - ❍ business activities
  - ❍ business functions
  - ❍ nature of business:
    - trends
    - influential factors: social, political, economic, technological, and global
  - ❍ business needs and wants
  - ❍ profit motive
  - ❍ growth
  - ❍ profit and nonprofit enterprises
  - ❍ social issues:
    - population/work force
    - environmental
    - social responsibility
  - ❍ legal issues:
    - economic regulations
    - business protections
    - protection of public interest
    - state and local regulations
    - business taxation
  - ❍ ethical issues and dilemmas

- Economics:
  - ❍ opportunity costs:
    - economic wants and needs
    - economic resources
  - ❍ supply and demand:
    - scarcity
    - elasticity and inelasticity
    - roles of buyers and sellers
    - monopoly
    - oligopoly
  - ❍ economic decision-making process
  - ❍ types of economic systems:
    - basic characteristics of each system
    - strengths and weaknesses
    - major features of United States economic system
  - ❍ economic incentives:
    - role of profit
    - risk
    - returns on investments
    - types of economic units/institutions
    - role of government
  - ❍ exchange and interdependence:
    - concept and types of exchange
    - function of currency
    - transaction costs
    - multiplier effect
    - money supply

- ❍ role of market and prices in United States economy:
  - pricing factors
  - market identification
  - effect of global economy
- ❍ role of consumers:
  - buying goods and services
  - financial planning/spending plans
  - savings and investments
  - credit
  - using financial services
  - protecting against risk
  - paying taxes
- ❍ consumer rights and laws:
  - consumer assistance
- ❍ economic indicators
- ❍ role of government

■ Multinational business:
- ❍ role of international business:
  - import/export
  - impact on United States economy
- ❍ communications in international business:
  - oral and written
  - nonverbal
  - technology
- ❍ environment:
  - cultural/social
  - political
  - legal
- ❍ resources
- ❍ ethics
- ❍ social responsibilities
- ❍ financial:
  - currency and exchange
  - balance of trade
  - balance of payments
- ❍ managing an international business:
  - organizational structures
  - human resources
  - entrepreneurial opportunities
- ❍ marketing products in other countries:
  - market research
  - product development
  - standards
  - pricing
  - distribution channels
  - promotional activities

■ Marketing:
- ❍ concept
- ❍ functions
- ❍ strategies for goods, services, ideas, and persons
- ❍ utility
- ❍ ethics:
  - code of behavior
  - truth in advertising, selling, and packaging
- ❍ external factors:
  - governmental regulations
  - economic environment
  - cultural differences
  - technology
  - special interest groups
  - competition
- ❍ product management:
  - planning considerations
  - development
  - product life cycle
  - packaging/branding
  - classifications
  - mix
- ❍ financial management:
  - objectives of pricing
  - calculating price
  - purchasing process
  - forecasting
- ❍ distribution systems:
  - channels of distribution
  - intermediaries
  - inventory control
- ❍ promotion/advertising/public relations:
  - media
  - budgets
  - technology
  - forms of sales promotion
  - promotion programs
  - public relations plan
  - personal selling
  - sales approaches
  - functions of sales personnel
- ❍ market research:
  - purposes
  - data collection, sampling, and analysis
- ❍ market types/characteristics:
  - buying motives
  - market segmentation

market positioning for competitive edge
- ❍ marketing plan:
  - development
  - strategic and tactical planning
- ❍ careers in marketing
- ❍ trends and innovations in marketing:
  - societal changes
  - technological innovation

■ Entrepreneurship:
- ❍ characteristics of the entrepreneur
- ❍ risks and rewards
- ❍ advantages and disadvantages
- ❍ opportunities
- ❍ management
- ❍ legal issues
- ❍ organizational structures
- ❍ business plan
- ❍ marketing
- ❍ economics
- ❍ finance/accounting
- ❍ global markets

■ Business-related mathematical computations:

- ❍ units of measurement:
  - American
  - metric
  - currency
- ❍ individual income taxes
- ❍ stock exchange transaction
- ❍ rates of return for various investments
- ❍ gross earnings, withholdings, deductions, and net earnings
- ❍ checkbook records
- ❍ net sales, cost of goods sold, gross profit, operating expenses, and net profit
- ❍ total assets, liabilities, and owner's equity
- ❍ cost of installment purchases
- ❍ inventory valuation
- ❍ computerized cash drawer reconciliation
- ❍ standard deviations

■ Analyze, construct, read, and interpret business-related numerical information:
- ❍ tables, charts, and graphs
- ❍ stock listings
- ❍ financial reports
- ❍ economic indicators

2. Business-Related Technology

Students will:

Select, apply, and troubleshoot hardware and software used in the processing of business transactions.

■ Identifying and selecting software:
- ❍ application and other software to perform business tasks and solve problems:
  - application software products for various platforms
  - purpose and use of application software
- ❍ types of operating systems, environments, and utilities
- ❍ evaluation of software programs
- ❍ emerging application software

■ Using software:
- ❍ data base software to plan, create, modify, and print reports
- ❍ presentation software and multimedia:
  - design, create, import data/graphics/scanned images/sound/video
  - edit, format, sequence, and produce a variety of presentations
- ❍ word processing software to create, input, edit, and print reports and correspondence
- ❍ spreadsheet software to design, create, manipulate, store, retrieve, update, add, search, sort, print, chart, and delete data
- ❍ desktop publishing software to produce a variety of publications
- ❍ imaging software and hardware to produce documents
- ❍ communications software to retrieve,

post, and share data and to communicate with others
- ❍ import and export text, data, and images between software programs
- ❍ subject-specific software (e.g., accounting)
- ❍ industry-specific software (e.g., legal)

■ Understanding hardware:
- ❍ purpose and operation of hardware components
- ❍ hardware components appropriate for specific tasks
- ❍ various configurations of hardware components
- ❍ ergonomic principles in configuration of workstations
- ❍ emerging hardware technology

■ Troubleshooting:
- ❍ install, customize, upgrade, and maintain application software
- ❍ diagnose and solve hardware and software problems
- ❍ use reference materials to diagnose and solve software/hardware problems:
  - on-line help
  - bulletin boards
  - tutorials
  - manuals
- ❍ install, remove, upgrade, repair, and store computer hardware

■ Keyboarding:
- ❍ features of various keyboards
- ❍ touch keyboarding skills at acceptable speed and accuracy levels
- ❍ entering and manipulating numeric data using the touch method on a 10-key keypad

3. Information Management/ Communications

Students will:

Prepare, maintain, interpret/analyze, and transmit/distribute information in a variety of formats while demonstrating the oral, nonverbal, and written communication skills essential for working in today's international service- information-technological-based economy.

■ Written communication:
- ❍ write messages appropriate for specific audiences
- ❍ use a variety of references and resources
- ❍ compose business letters, memoranda, and reports using correct style, format, and content
- ❍ use technical writing to prepare industry-specific reports
- ❍ use corporate vocabulary appropriate for entry-level jobs
- ❍ proofread documents for correct grammar, spelling, and punctuation
- ❍ prepare correspondence sensitive to language biases
- ❍ research, analyze, and prepare reports for business problems
- ❍ follow written directions
- ❍ analyze and interpret print and electronic correspondence

■ Oral communication:
- ❍ select language appropriate for the situation
- ❍ organize thoughts to reflect logical thinking
- ❍ communicate effectively as a member of a team
- ❍ use appropriate telephone techniques and etiquette
- ❍ express ideas in formal and informal situations
- ❍ deliver impromptu and planned oral presentations
- ❍ apply interview communication skills
- ❍ ask questions to solicit and clarify information
- ❍ interact effectively with individuals of varying backgrounds

- ❍ follow oral directions

- ■ Nonverbal communication:
  - ❍ demonstrate effective listening skills
  - ❍ listen for meaning
  - ❍ understand nonverbal clues in message interpretation
  - ❍ understand nonverbal communications of people from other regions and cultures

- Telecommunication:
  - ❍ voice mail
  - ❍ video/teleconferencing
  - ❍ electronic mail (e-mail)
  - ❍ local area networks (LAN)
  - ❍ wide area networks (WAN)
  - ❍ information service providers (e.g., American Online, Prodigy)
  - ❍ Internet, intranet, extranet, World Wide Web
  - ❍ online information retrieval/research applications
  - ❍ online commerce (e.g., financial, marketing)

4. Business Systems

Students will:

Demonstrate an understanding of the interrelatedness of business, social, and economic systems/subsystems.

- ■ Business organizations:
  - ❍ forms:
    - proprietorship
    - partnership
    - corporation
    - specialized
  - ❍ characteristics of each organization:
    - formation steps
    - advantages and disadvantages

- ■ Administrative systems:
  - ❍ information services:
    - systems development
    - data/text processing
  - ❍ policies and procedures
  - ❍ records management:
    - design
    - storage/retrieval
    - transfer/retention
    - micrographics
  - ❍ general office services:
    - equipment/supplies control
    - equipment purchase/utilization
    - mail service
    - reprographics
  - ❍ work standards:
    - standards development
    - office employee assignment
    - employee evaluation

- ■ Financial systems:
  - ❍ accounting:
    - time cards
    - invoices
    - purchase orders
    - petty cash funds
    - checkbook register
    - customer accounts
    - billing
    - budget preparation
    - use of budget as analytical and evaluative tool
    - balance sheet
    - income statement
    - financial analysis to identify trends
  - ❍ financial management:
    - capital sources for start-up, working, and expansion capital
    - credit and collections plans, policies, and procedures
    - risks and insurance

- ■ Marketing systems:
  - ❍ buying
  - ❍ selling
  - ❍ transporting
  - ❍ storing
  - ❍ financing
  - ❍ researching and information gathering
  - ❍ risk taking
  - ❍ standardization and grading

- ■ Legal systems:
  - ❍ ethics and the law
  - ❍ structure of the courts
  - ❍ business law:
    - contract law
    - law of sales
    - consumer law
    - agency law
    - employment law

property law

- Production Systems:
  - manufacturing
  - robotics
  - production techniques in service-oriented businesses
  - current trends

5. Resource Management

Students will:

Identify, organize, plan, and allocate resources (e.g., financial, materials/facilities, human, time) in demonstrating the ability to manage their lives as learners, contributing family members, globally competitive workers, and self-sufficient individuals.

- Human resources management:
  - planning
  - recruiting and selecting personnel
  - training and development
  - performance appraisal
  - promoting and transferring
  - terminating employment
  - compensation:
    - wages, salaries, and incentives
    - employee benefits and services
  - labor legislation
  - internal communications

- Business organization management:
  - organizational charts
  - resources for organizations

- Personal resource management:
  - scarcity, choice, and opportunity costs
  - consumer decisions:
    - goods and services
    - financial planning
    - conserving resources

- Business/information careers:
  - occupational clusters
  - specific skill/education requirements
  - job characteristics for occupational clusters
  - career ladders within clusters

6. Interpersonal Dynamics

Students will:

Exhibit interpersonal skills essential for success in the multinational business world, demonstrate basic leadership abilities/skills, and function effectively as members of a work group or team.

- Skills for success in a multinational business world:
  - personal qualities related to employability
  - team member skills needed to accomplish a task
  - interpersonal skills for working with and for others
  - give/receive constructive criticism

- Demonstrate basic leadership abilities and skills:
  - leader characteristics
  - organizing and leading informal and formal groups
  - concepts of employee empowerment
  - planning, organizing, and conducting meetings
  - moral responsibility and personal ethics

- Function effectively as members of a work group/team:
  - understanding a corporate culture
  - sensitivity to and awareness of cultural diversity in the workplace
  - apply the principles of group dynamics and participate in team activities
  - effective listening skills
  - appropriate responses to passive, assertive, and aggressive behaviors
  - techniques to provide appropriate feedback
  - understanding the chain of command
  - purpose of authority
  - delegation techniques

Standard 3b — Career Majors

Health Services — Core

1. Academic Foundations

Students will:

Apply knowledge/skills acquired in academic subjects to the health care environment.

- English language arts related to health services:
  - reading
  - writing
  - speaking
  - listening
- Natural sciences as applied to health services:
  - anatomy and physiology
  - biology
  - physics
  - chemistry
  - microbiology
  - nutrition
- Applied mathematics specific to health care
- Impact of social sciences in the health care system:
  - human behaviors
  - cultures
  - psychology
  - life cycles
  - sociology
- Historical perspective

2. Health Care Systems

Students will:

Understand the current health care system and its impact on health careers.

- Delivery systems:
  - acute care
  - subacute care
  - skilled care
  - health maintenance organizations
  - managed care
  - not for profit/for profit
- Trends:
  - economic
  - demographic
  - technological
- Social effects:
  - HMOs versus traditional coverage
  - Medicare/Medicaid
  - national health care
- Career choices in health care:
  - diagnostic cluster
  - therapeutic cluster
  - environmental cluster
  - information services
- Morality of changes in health care delivery system:
  - decision-making process (gatekeeper)
  - profit-driven
  - best interest of patient or corporation

3. Health Maintenance

Students will:

Develop knowledge of the concept of optimal health and identify factors that affect health maintenance.

- What health is:
  - theories
  - aspects:
    - physical
    - mental
    - emotional
- Factors that affect health:
  - environmental:
    - solid waste
    - airborne pollutants
  - socioeconomic:
    - costs
    - insurance
    - access
  - heredity/genetics
  - risks
- Behaviors that promote health:
  - personal health habits
  - peer influences
  - media influence
- Alternative health practices
- Preventive medicine:
  - screening
  - routine exams
  - health teaching
- Community health/resources
- Societal perceptions of health maintenance:
  - cultural values/beliefs motivating behaviors
  - health care as a right

4. Legal and Ethical Responsibilities

Students will:

Know the importance of performing a role in the health care system in accordance with laws, regulations, policies, ethics, and the rights of clients.

- Legal issues related to health careers:
  - scope of practice for licensed practitioners
  - civil
  - criminal
- Ethical issues:
  - code of ethics
  - client rights:
    - right to die
    - advance directives
    - DNR (Do Not Resuscitate)
    - health care proxy
    - abortion
    - confidentiality
    - physician-assisted suicide
    - client bill of rights
    - ethical decision-making
- Theories of morality
- Regulations and controls:
  - licensure requirements
  - certification requirements
  - sources of regulations:
    - state
    - health department
    - OSHA
    - CDC
  - institutional policies/procedures
- Qualities of health workers:
  - accountability
  - adaptability
  - appearance
  - attitude
  - competency
  - cooperation
  - responsibility
  - initiative

- Responsibilities:
  - employer
  - employee
  - clients
  - reportable incidents

5. Safety

Students will:

Identify safety hazards in a health care setting and prevent illness or injury through safe work practices.

- Safety hazards in health care facilities:
  - fire
  - chemical
  - electrical
  - physical
  - bio-medical
  - lifting/transporting

- Prevention of injury in health care facilities:
  - standard precautions/universal precautions
  - body mechanics
  - OSHAregulations
  - first aid
  - CPR
  - choking

- Safety responsibilities and accident prevention:
  - employer:
    - adherence to building codes
    - evacuation policies
    - environmental safety
  - employee
  - consumer

6. Communications

Students will:

Communicate information in a variety of formats and media.

- Medical terminology and abbreviations

- Elements of therapeutic communication:
  - verbal vs. nonverbal/body language
  - listening
  - barriers
  - observation skills
  - confidentiality
  - interpersonal skills
  - role playing
  - telephone skills

- Documentation:
  - legal implications for health care workers
  - accuracy of interpretation
  - data security and confidentiality
  - subjective/objective observations

- Computer systems knowledge and skills related to health careers:
  - accessing information:
    - diagnostic
    - therapeutic
  - data security and confidentiality
  - resource management:
    - inventories
    - registries
    - supply orders
  - client data base from admission to discharge

- Application of foundation skills to specific health careers:
  - problem-solving
  - critical thinking
  - interpersonal skills
  - decision-making skills
  - job-seeking and keeping skills:
    - resume writing
    - interview skills

7. Interpersonal Dynamics

Students will:

Interact effectively and sensitively with all other members of the health care team in order to provide high-quality client care.

- Team building in the health care setting
- Function and role within team
- Positive communication skills:
  - cooperation
  - leadership
  - sharing
  - listening
  - diversity/cultural issues
  - group
  - class
  - community
  - client
- Leadership:
  - characteristics
  - styles
  - methods of problem-solving
  - goal setting
  - methods of decision-making
- Conflict resolution
- Professionalism:
  - definition
  - organizations (professional, student)

8. Technical Skills

Students will:

Identify procedures within the scope of practice and job descriptions, and perform them accurately and in a timely fashion.

- Job descriptions
- Hierarchy of broad-based common health care skills
- Job-specific skills— basic to advanced
- Safe practices
- Resource management
- Organizational skills
- Monitoring client status
- Specific skills:
  - standard precautions/universal precautions
  - transfer techniques
  - body mechanics
  - medical asepsis
  - isolation technique
  - vital signs
  - observations/data collection
  - first aid/CPR
- Documentation

Engineering Technologies — Core

1. Foundation Development

Students will:

Develop practical understanding of engineering technology through reading, writing, sample problem solving, and employment experiences.

- Communication techniques:
  - reading:
    - instruction manuals
    - specifications
    - plans/blueprints/schematics
    - product warnings
    - test and diagnostic instruments
    - graphs and charts
  - graphic and visual communication:
    - sketches
    - geometric constructions
    - computer simulations
    - scale models
    - working prototypes
  - written and verbal communication:
    - interviews
    - presentations
    - technical reports
    - repair orders
    - job task sheets
    - electronic transfer
    - technical vocabulary
  - active listening skills:
    - understand verbal directions
    - detect noises in equipment

- Mathematics competencies:
  - computation skills for solution of technological problems:
    - ratios/proportions
    - statistics
    - angles
  - measurement skills using measuring devices:
    - linear
    - volume
    - pressure
    - resistance
    - electric
    - metric and United States standard
  - mathematic modeling to simulate technological systems

- Critical thinking and problem-solving skills:
  - use problem-solving process to produce a solution:
    - get information
    - develop alternative solutions
    - evaluate solutions using pre-determined criteria
    - analyze solutions using a holistic view
    - group process
  - assume responsibility in a group addressing a task
  - participate in a team process to generate solutions through consensus

- Ethical, legal, workplace, and social responsibilities:
  - importance of a continuous improvement plan to maintain personal and employment skills
  - ethical implications of decisions and behavior
  - appropriate use-reuse of resources in products or systems design, servicing and repair, and construction manufacturing
  - relationship of technology to the natural environment:
    - environmental maintenance and improvement
    - detrimental impact
  - relationship between technology and United States economic prosperity:
    - product development
    - product manufacturing
    - service and repair
    - marketing and distribution
    - disposal and recycling

- ❍ workplace skills, such as:
  - being a team player
  - honesty
  - appreciation of a day's work
  - punctuality
  - integrity
  - loyalty
  - flexibility

■ Workplace safety procedures:

- ❍ laws and regulations applicable to the work environment:
  - OSHA
  - HAZMAT
  - state (e.g., labor laws)
  - local (e.g., including permits, fire codes)
- ❍ safe work habits:
  - alertness
  - nutrition
  - planning and organization
  - proper equipment use
- ❍ group safety through communication:
  - voice
  - hand signal
  - written
- ❍ safe work environments:
  - facility
  - equipment layout and accessories
  - space allocation
  - visual (e.g., chemicals, welding)
  - air (e.g., automotive)
  - audio (e.g., aviation)
  - accident prevention
- ❍ safety apparatus requirements and usage:
  - emergency procedures
  - hoists and lifts
  - compressed air tools
  - jack stands
  - fuses and breakers
  - electrical grounding
  - fire apparatus
- ❍ worker certification and licensing

2. Technology

Students will:

Demonstrate how all types of engineering/technical organizations, equipment (hardware/software), and well-trained human resources assist and expedite the production/distribution of goods and services.

■ Technical system structures:

- ❍ structure and components:
  - system (macro and micro)
  - subsystems
  - open/closed loop system designs
- ❍ measuring the performance of existing systems:
  - using sensory experience
  - instrumentation
  - consumer satisfaction
- ❍ system modeling (including computer simulation) to describe a technical/organizational system

■ Technical organization structures:

- ❍ corporate
- ❍ small business
- ❍ research and development
- ❍ governmental

■ Tools and equipment:

- ❍ evolutionary development of hand and machine tools
- ❍ current state of technology:
  - manufacturing
  - transportation
  - graphic communications
  - electronics
  - construction
  - mechanical
  - chemical
- ❍ integration of equipment and computer application
- ❍ impact of technology on employee productivity
- ❍ importance of continuous service and maintenance

- Personal employment skills:
  - career development plan:
    - prerequisite skills for a technology-related career
    - core skills needed for technology careers
  - technical careers and evolving requirements:
    - identifying careers
    - career ladders
    - credentials needed
    - where jobs are located
    - demand for workers
    - continuous training
    - resume writing
  - dynamics of a rapidly changing environment which affects technological careers:
    - natural
    - economic
    - social
  - role/responsibilities of being an employee versus being self-employed
  - understanding the whole organization and individual roles

3. Engineering/Industrial Processes

Students will:

Demonstrate knowledge of planning, product development and utilization, and evaluation that meets the needs of industry.

- Product planning:
  - product and service development:
    - market research
    - market creation based on human needs and wants
  - planning for production:
    - accessing technical data
    - resources in the production of a product: human, energy, materials
  - planning service and repair procedures
  - communicating about manufactured products:
    - sketching
    - orthographic projection
    - pictorial drawing
    - CAD
    - solid modeling
    - manuals
    - advertisement
    - training sessions
  - sequence of part(s) layout, production, and assembly based upon technical drawing information
  - alternative design and process options

- Product development and use techniques:
  - engineering processes and production:
    - chemical
    - material
    - electronic
    - mechanical
  - importance of mathematic and scientific principles:
    - applying physics
    - applying chemistry
    - using integrated math, science, and technology principles
    - properties of materials
  - producing a product or service:
    - tools
    - machines
    - materials
    - processes

- Product testing and evaluation techniques:
  - testing to evaluate product quality and safety:
    - destructive and nondestructive
    - computer
    - test instruments
    - tolerances
  - statistical analysis to evaluate the process in terms of quality control
  - troubleshooting skills:
    - identifying design errors
    - analyzing system malfunctions
    - identifying product faults
    - correcting problems
  - consumer satisfaction
  - performance standard

Standard 3b — Career Majors

Human and Public Services — Core

1. Ethical/Legal Responsibilities

Students will:

Demonstrate professional, ethical, and legal responsibilities toward customers.

- Workplace/environmental regulations:
  - OSHA
  - EPA
  - HAZMAT
  - licensing requirements
  - health department
  - fair labor standards
  - violations/infractions of laws
  - barrier-free environments and designs
  - insurance and financial obligations
- Consumer regulations:
  - local, federal, and state safety codes
  - town and local ordinances
  - food label laws
  - clothing label laws
  - appliance label laws
  - FDAproduct safety
  - consumer laws
  - family law
- Ethics:
  - client confidentiality
  - child protective services
  - provision for specialized services
- Business responsibilities:
  - business ethics
  - employee relations
  - customer relations
  - financial resources and regulations
  - business law

2. Communications

Students will:

Demonstrate effective communication skills needed to meet the expectations of human and public services consumers.

- Techniques of effective speaking/writing in the workplace:
  - correct grammar
  - written reports
  - questioning skills
  - directions in oral/written form
  - listening skills
  - read and comprehend
  - interpret data
  - presentation skills
  - interviewing skills
- Communication processes to convey information:
  - records, forms, applications, resumes, reports
  - alternative communication techniques (e.g., ASL, technology)
  - constructive/destructive communication techniques

- ❍ nonverbal communication
- ❍ public relations/advertising and promotional

■ Technical communications:

- ❍ telephone etiquette/usage
- ❍ computer skills:

  use of CD-ROM
  use of Internet/World Wide Web
  use of data bases
  search for and retrieve data
  record and analyze data

3. Sanitation

Students will:

Demonstrate a knowledge of the principles of sanitation used to prevent the transmission of disease-producing microorganisms from one person/object to another.

■ Personal/employee:

- ❍ hygiene
- ❍ immunization
- ❍ infection and disease control
- ❍ universal precautions

■ Environmental:

- ❍ bacteriology
- ❍ chemical and physical methods of sanitation
- ❍ storage of materials, supplies, equipment
- ❍ clean, sanitize, disinfect home and work areas

4. Human Growth and Development

Students will:

Understand the process of human growth and development and its influence on client needs.

■ Life cycle stages:

- ❍ prenatal through elder years
- ❍ physical development
- ❍ human sexuality
- ❍ intellectual development
- ❍ social and emotional development
- ❍ self-concept formation
- ❍ disabilities

■ Families:

- ❍ family composition
- ❍ parenting styles
- ❍ individual and family member roles
- ❍ family dynamics
- ❍ individual and family goals
- ❍ individual and family value systems
- ❍ family crises and stress factors

5. Interpersonal Dynamics

Students will:

Demonstrate how to interact effectively and sensitively with others.

■ Relationships:

- ❍ group dynamics
- ❍ independence/interdependence
- ❍ interrelationship of life roles
- ❍ gender identity and roles
- ❍ conflict resolution
- ❍ tolerance
- ❍ influence of change
- ❍ crisis management

■ Leadership:

- ❍ personal development
- ❍ empowerment
- ❍ cooperative work techniques
- ❍ individual contributions of groups

- ❍ organizational structures
- ❍ youth leadership organizations

■ Community resources:

- ❍ agencies
- ❍ support systems/networks
- ❍ professional organizations

6. Safety

Students will:

Provide safe environments for others.

■ Personal:

- ❍ use and care manuals
- ❍ general safety rules
- ❍ accident/injury prevention
- ❍ emergency measures

■ Workplace/home:

- ❍ adaptations for disabling conditions
- ❍ selection criteria for tools, equipment, appliances
- ❍ evaluations of home/workplace
- ❍ emergency management
- ❍ fire prevention

7. Thinking/Problem-Solving

Students will:

Solve problems, set goals, and make decisions in order to provide services to best meet the needs of others.

■ Goal setting:

- ❍ setting priorities
- ❍ needs assessment
- ❍ adjusting to change

■ Process skills:

- ❍ decision-making model
- ❍ problem-solving model
- ❍ management process
- ❍ FHAplanning and management process

■ Family resource management:

- ❍ environmental/space management
- ❍ consumerism
- ❍ nutrition management
- ❍ money management
- ❍ clothing management

8. Personal Resource Management

Students will:

Apply personal and resource management skills.

■ Personal management:

- ❍ skills, abilities, and aptitudes
- ❍ time allocation: work, leisure, and personal development
- ❍ role models, mentors, and networks
- ❍ lifelong learning/continuing education
- ❍ career plan

■ Resource management:

- ❍ time/schedule planning
- ❍ energy/supplies/materials conservation
- ❍ resource availability
- ❍ management of living/working spaces
- ❍ coordination of work relationships
- ❍ human resource management
- ❍ technological changes

■ Balancing work and family roles:

- ❍ work schedule
- ❍ physical and emotional demands

- ❍ family demands
- ❍ travel requirements
- ❍ characteristics of the workplace (e.g., "family friendly")

9. Wellness

Students will:

Exhibit and promote a positive image of wellness.

- ■ Nutrition:
  - ❍ nutrients and food sources
  - ❍ dietary guidelines/food pyramid
  - ❍ food for performance
  - ❍ food-related illnesses
  - ❍ global food issues
  - ❍ government programs related to nutrition
  - ❍ role of food in the body
  - ❍ therapeutic diets
- ■ Fitness:
  - ❍ lifetime fitness
  - ❍ leisure activities/lifetime sports
  - ❍ weight management
  - ❍ body systems
- ■ Mental/emotional health:
  - ❍ work attitudes/productive use of time
  - ❍ personal wellness plan
  - ❍ stress/crisis management
  - ❍ anger management
  - ❍ self-concept
  - ❍ aging process

Standard 3b — Career Majors

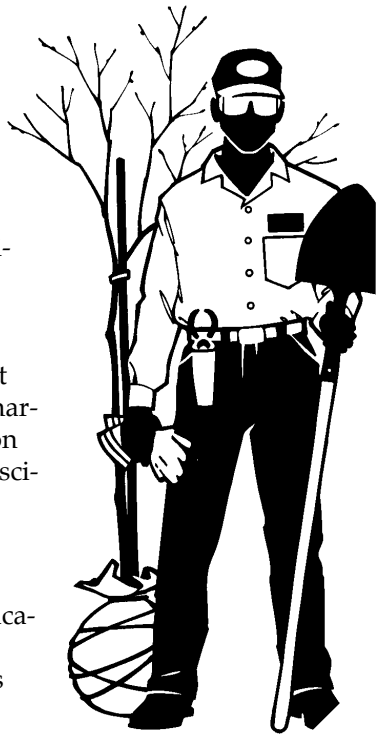
Natural and Agricultural Sciences — Core

1. Basic Agriculture Foundation Development

Students will:

Demonstrate a solid base of knowledge and skills in natural and agricultural sciences.

- Definition of agriculture science industry:
  - ❍ production of plants and animals for food and fiber
  - ❍ provision of agricultural supplies and services
  - ❍ processing, marketing, and distribution of agricultural products
  - ❍ related ornamental and recreational industries
  - ❍ the environmental system
- Changes and trends in agriculture:
  - ❍ local
  - ❍ county
  - ❍ state
  - ❍ national
  - ❍ global
- Importance of agriculture:
  - ❍ dollar value
  - ❍ number of people employed
  - ❍ products
  - ❍ services
  - ❍ job opportunities
  - ❍ global economy
  - ❍ national statistics
  - ❍ regional and local agriculture
  - ❍ careers in agriculture
- Skills and understandings for basic agriculture areas:
  - ❍ ecology:
    - ecosystems
    - population dynamics
    - soil, water, and air
    - waste reuse, recycling, and disposal
    - environmental management
  - ❍ plant science:
    - classification and identification
    - physiology
    - reproduction
    - growth and development
    - financial management, marketing, and distribution
    - safety measures in plant science
    - food safety
  - ❍ animal science:
    - classification and identification
    - health and welfare issues
    - nutrition
    - reproduction
    - growth and development
    - safety in working with animals
    - food safety
  - ❍ mechanical and technical science:
    - basic theories, principles, and measurements
    - commodity and materials processing
    - financial management, marketing, and distribution
    - agricultural tool and equipment repair and maintenance
    - power and construction systems
    - safety



- ❍ enterprise management:
  - basic economic concepts
  - business management and planning
  - business records
  - markets and marketing
  - financial management
  - analysis of a business

- ■ Legal, ethical, technical, and social responsibilities related to the basic agriculture areas

- ■ Solving agricultural-related problems:
  - ❍ computations commonly used in agriculture
  - ❍ creative thinking, problem-solving, and decision-making

- ■ Enhancing agricultural skills:
  - ❍ FFAcareer development events
  - ❍ internships, shadowing, and cooperative work experience

2. Agricultural-Related Technology

Students will:

Demonstrate the ability to use technology to assist in production and distribution of food goods and services of today's agriculture industries.

- ■ Current technologies:
  - ❍ computerized recordkeeping and analysis
  - ❍ interactive computer networking
  - ❍ biotechnology
  - ❍ global positioning system
  - ❍ electronics in agriculture equipment
  - ❍ robotics
  - ❍ environmental monitoring technology

- ■ Sources of information on current technologies

3. Information Management and Communication

Students will:

Prepare, maintain, interpret, and disseminate quantitative and qualitative pieces of information relating to the natural and agricultural sciences.

- ■ Selection and use of information sources:
  - ❍ periodicals
  - ❍ books
  - ❍ electronic resources

- ■ Oral communications:
  - ❍ extemporaneous speeches
  - ❍ prepared speeches
  - ❍ telephone and other electronic communication devices
  - ❍ interactive group discussions and presentations
  - ❍ agricultural-related sales presentations

- ■ Listening skills

- ■ Written communications:
  - ❍ business letters
  - ❍ resumes
  - ❍ reports
  - ❍ marketing information
  - ❍ interactive networks

- ■ Multi-media combinations of written, oral, and visual techniques

- ■ Determining types of communication skills to use

- ■ FFAcareer development events based on communication skills

- ■ Internships, shadowing, and cooperative work experience

4. Agriculture Business Systems

Students will:

Demonstrate an understanding of the interrelationship between agricultural businesses and organizations designed to produce products, services, and information.

- Changes in agriculture's social, organizational, and technological systems:
  - demographics
  - environmental issues
  - technological advancements
  - economics
- Purposes of agricultural businesses:
  - make a profit
  - produce food, fiber, ornamental, and recreational products and services
  - provide agriculture services to producers and consumers
  - marketing and distributing agriculture products
- Agricultural business organizations:
  - sole proprietorship
  - partnership
  - corporation
  - cooperative
  - franchise
  - subcontracting
- Agricultural business functions:
  - production
  - distribution
  - service enterprise
- Agricultural business systems:
  - aquatic and animal production
  - lawns and greens maintenance
  - field and vegetable crop production
  - nursery and greenhouse plant production
  - hydroponics
  - fruit production
- Agricultural business systems management:
  - plant and animal nutrition
  - disease and pest control
  - breeding and propagation
  - financial management
- Consumer rights and governmental regulations

5. Resource Management

Students will:

Demonstrate the ability to manage personal time, business, and financial resources.

- Resources:
  - capital
  - human
  - natural
- Business use of resource:
  - identifying and selecting available resources
  - securing resources to make a profit
  - managing resources to make a profit
- Personal resource management:
  - using time effectively
  - planning, organizing, and setting goals
  - developing knowledge and skills
- Capital resource management:
  - money management skills:
    budget preparation
  - financial management (business and personal):
    banking
    credit use
    investment
- Human resource management

6. Interpersonal Dynamics

Students will:

Demonstrate the interpersonal skills and abilities needed to function within a sophisticated and sometimes complicated agricultural environment.

- Qualities for workplace success:
  - responsibility for self and others
  - self-esteem
  - social interaction
  - teamwork
  - self-motivation
  - adaptability to change
  - ability to work with and benefit from a multicultural workforce
- Personal qualities:
  - dedication
  - commitment
  - integrity
  - honesty
  - punctuality
  - appearance
- Leadership skills:
  - use of parliamentary procedure
  - shared decision-making
  - autocratic approach
  - forums
  - skills and responsibilities of FFAofficers and members
- Using team approach to solve problems:
  - being involved in FFAskill exercises
  - developing interpersonal relationships
  - recognizing achievement
  - gaining experience

7. Safety

Students will:

Demonstrate awareness of the importance of safety and accident prevention in all agricultural situations.

- Types of hazards:
  - chemical hazards
  - mechanical hazards
  - animal hazards
  - plant hazards
  - workplace hazards
  - environmental hazards
- Regulatory agencies:
  - international
  - national
  - state
  - local
- Safety precautions to prevent accidents:
  - attitude
  - fatigue
  - lack of knowledge
  - haste
  - age
  - safety devices
- FFAcareer development events designed to enhance safety skills