

VoCATS Course Blueprint

Health Occupations Education

7200 Biomedical Technology

*Public Schools of North Carolina
State Board of Education • Department of Public Instruction
Curriculum and School Reform Services
Division of Instructional Services*

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This blueprint has been reviewed by the following business and industry representatives for technical content and appropriateness for the industry.

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VoCATS Course Blueprint

A course blueprint is a document laying out the framework of the curriculum for a given course.

Shown on the blueprint are the units of instruction, the core competencies in each unit, and the specific objectives for each competency. The blueprint illustrates the recommended sequence of units and competencies and the cognitive and performance weight of the objective within the course.

The blueprint is intended to be used by teachers in planning the course of work for the year, preparing daily lesson plans, and constructing instructionally valid assessments.

For additional information about this blueprint, contact program area staff. For additional information about the VoCATS Competency Achievement Tracking System, contact program area staff or VoCATS, Career-Technical Education, Division of Instructional Services, North Carolina Department of Public Instruction, 301 North Wilmington Street, Raleigh, North Carolina 27601-2825, 919/715-1674, email: rwelfare@dpi.state.nc.us.

Interpretation of Columns on VoCATS Course Blueprints

No.	Heading	Column information
1	Comp# Obj.#	Comp=Competency number (three digits); Obj.=Objective number (competency number plus two-digit objective number).
2	Unit Titles/Competency and Objective Statements	Statements of unit titles, competencies per unit, and specific objectives per competency. Each competency statement or specific objective begins with an action verb and makes a complete sentence when combined with the stem "The learner will be able to. . ." (The stem appears once in Column 2.) Outcome behavior in each competency/objective statement is denoted by the verb plus its object.
3	Time Hrs	Space for teachers to calculate time to be spent on each objective based on the course blueprint, their individual school schedule, and the students' performance on preassessments.
4&5	<u>Course Weight</u> Cognitive Performance	Shows the relative importance of each objective, competency, and unit. Weight is broken down into two components: cognitive and performance. Add the cognitive and performance weights shown for an objective in columns 4 and 5 to determine its total course weight. Course weight is used to help determine the percentage of total class time that is spent on each objective. The VoCATS Annual Planning Calendar shows how to use the course weight to determine the approximate number of days to be devoted to each objective. The breakdown in columns 4 and 5 indicates the relative amount of class time that should be devoted to cognitive and performance activities as part of the instruction and assessment of each objective. Objectives with performance weight should include performance activities as part of instruction and/or assessment.
6	Type Behavior	Classification of outcome behavior in competency and objective statements. (C=Cognitive; P=Psychomotor; A=Affective)
7	Integrated Skill Area	Shows links to other academic areas. Integrated skills codes: A=Arts; C=Communications; CD=Career Development; CS=Information/Computer Skills; H=Health and Safety; M=Math; SC=Science; SS=Social Studies.
8	Core Supp	Designation of the competencies and objectives as Core or Supplemental. Competencies and objectives designated "Core" must be included in the Annual Planning Calendar and are assessed on the statewide pre- and postassessments..

Workforce Development Education conducts all activities and procedures without regard to race, color, creed, national origin, gender, or disability. The responsibility to adhere to safety standards and best professional practices is the duty of the practitioners, teachers, students, and/or others who apply the contents of this document.

Health Occupations Education
COURSE BLUEPRINT for 7200 Biomedical Technology
 (Recommended hours of instruction: 135-165 hours)

Comp # Obj #	Unit Titles/Competency and Objective Statements (The Student will be able to:)	Time Hours	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive 4	Performance 5			
1	2		4	5	6	7	8
			100%				
	Total Course Weight		79%	21%			
A	HEALTH CARE TERMINOLOGY						
BT01.00	Interpret biomedical prefixes, suffixes, root words and abbreviations.		6%		C2	C/H/SC	Core
<i>BT01.01</i>	<i>Identify biomedical word roots, prefixes, suffixes and abbreviations.</i>		4%		C1	C/H/SC	Core
<i>BT01.02</i>	<i>Combine word elements to form words commonly used in biomedical technology.</i>		2%		C2	C/H/SC	Core
B	BIOMEDICAL ETHICS AND LEGAL PRINCIPLES						
BT02.00	Analyze biomedical ethics and legal principles.		5%		C3	C/H/SS	Core
<i>BT02.01</i>	<i>Summarize legal principles of biomedical technology.</i>		2%		C2	C/H/SS	Core
<i>BT02.02</i>	<i>Analyze the ethical principles of biomedical technology.</i>		2%		C3	C/H/SS	Core
<i>BT02.03</i>	<i>Examine patient's rights as presented by the American Hospital Association.</i>		1%		C2	C/H/SS	Core
C	TECHNOLOGY IN MEDICINE						
BT03.00	Analyze the use of technology in medicine.		6%		C3	CS/H/SC	Core
<i>BT03.01</i>	<i>Describe the use of computers in health care.</i>		2%		C1	CS/H/SC	Core
<i>BT03.02</i>	<i>Discuss radiology and digital imaging.</i>		2%		C2	CS/H/SC	Core
<i>BT03.03</i>	<i>Investigate telemedicine applications.</i>		2%		C3	CS/H/SC	Core
D	MEDICAL MATHEMATICS						
BT04.00	Analyze mathematical concepts in health care.		5%		C3	H/M	Core
<i>BT04.01</i>	<i>Calculate weights, heights, and volume in metric units of measure.</i>		2%		C3	H/M	Core
<i>BT04.02</i>	<i>Convert among metric measures and standard measures.</i>		3%		C3	H/M	Core

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E	FORENSIC MEDICINE						
BT05.00	Analyze the use of forensic medicine in criminal science.		9%		C3	H/SC	Core
<i>BT05.01</i>	<i>Discuss the applications of forensic medicine.</i>		1%		C1	H/SC	Core
<i>BT05.02</i>	<i>Describe the use of an autopsy in determining time and cause of death.</i>		3%		C2	H/SC	Core
<i>BT05.03</i>	<i>Discuss the use of DNA typing and forensic anthropology in identification.</i>		3%		C2	H/SC	Core
<i>BT05.05</i>	<i>Discuss uses of odontology and serology studies in forensic medicine.</i>		2%		C2	H/SC	Core
F	INFECTIOUS DISEASES						
BT06.00	Analyze issues of public health, infectious diseases and bioterrorism.		10%	1%	C3	H/SC	Core
<i>BT06.01</i>	<i>Discuss the infectious disease process.</i>		2%		C2	H/SC	Core
<i>BT06.02</i>	<i>Analyze the role of public health in the prevention of infectious diseases.</i>		2%		C3	H/SC	Core
<i>BT06.03</i>	<i>Investigate the treatment of infectious diseases.</i>		2%		C3	H/SC	Core
<i>BT06.04</i>	<i>Analyze emerging and re-emerging infectious diseases as a public health issue.</i>		2%		C3	H/SC	Core
<i>BT06.05</i>	<i>Examine the containment of bioterrorism agents.</i>		2%	1%	C3	H/SC	Core
G	ORGAN TRANSPLANTS						
BT07.00	Examine organ transplantation.		4%	1%	C3	H/SC/SS	Core
<i>BT07.01</i>	<i>Describe basic facts and organizations related to organ transplantation.</i>		2%		C1	H/SC	Core
<i>BT07.02</i>	<i>Analyze bioethical issues associated with organ transplants.</i>		2%	1%	C3	H/SC/SS	Core
H	CELL BIOLOGY AND CANCER						
BT08.00	Analyze cell biology and cancer.		8%	1%	C3	H/SC	Core
<i>BT08.01</i>	<i>Summarize cancer types, incidence, predisposition and risk factors.</i>		2%		C2	H/SC	Core
<i>BT08.02</i>	<i>Outline the causes and development of cancer.</i>		2%		C2	H/SC	Core
<i>BT08.03</i>	<i>Discuss genetic damage and mutation.</i>		2%		C2	H/SC	Core
<i>BT08.04</i>	<i>Apply knowledge of cancer to improve personal and public health.</i>		2%	1%	C3	H/SC	Core
I	CAREERS IN BIOMEDICAL TECHNOLOGY						
BT09.00	Evaluate careers and techniques that use biomedical technology.		12%	2%	C3	CD/H/SC	Core
<i>BT09.01</i>	<i>Investigate laboratory careers.</i>		3%		C2	CD/H/SC	Core
<i>BT09.02</i>	<i>Discuss imaging careers and technology.</i>		3%		C2	CD/H/SC	Core
<i>BT09.03</i>	<i>Describe environmental careers, resources and hazards.</i>		3%		C2	CD/H/SC	Core
<i>BT09.04</i>	<i>Outline biotechnology careers and genetics.</i>		3%		C2	CD/H/SC	Core
<i>BT09.05</i>	<i>Evaluate the importance of biomedical technology in a chosen health career.</i>			2%	C3	CD/H/SC	Core

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J	BIOMEDICAL RESEARCH						
BT10.00	Analyze biomedical research.		9%	2%	C3	H/SC	Core
<i>BT10.01</i>	<i>Discuss biomedical research.</i>		3%		C2	H/SC	Core
<i>BT10.02</i>	<i>Outline biomedical research methods.</i>		3%		C2	H/SC	Core
<i>BT10.03</i>	<i>Analyze the benefits of biomedical research.</i>		3%	2%	C3	H/SC	Core
K	CHALLENGES TO BIOMEDICAL RESEARCH						
BT11.00	Analyze challenges to biomedical research.		5%	6%	C3	H/SC	Core
<i>BT11.01</i>	<i>Interpret personal beliefs about biomedical research.</i>			2%	C2	H/SC	Core
<i>BT11.02</i>	<i>Analyze the role of transgenic animals.</i>		3%		C3	H/SC	Core
<i>BT11.03</i>	<i>Evaluate therapeutic vs. reproductive cloning.</i>		2%	1%	C3	H/SC	Core
<i>BT11.04</i>	<i>Debate pros and cons of animal research and animal rights.</i>			3%	C3	H/SC	Core
L	CURRENT ISSUES IN BIOMEDICAL TECHNOLOGY						
<i>BT12.00</i>	<i>Analyze current issues in biomedical technology.</i>			8%	C3	H/SC	Core