

Science Laboratory Technology

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DACUM Skill Rating Scale

- 1 - Can perform some parts of this skill satisfactorily but requires assistance and/or supervision to perform the entire skill.
- 2 - Can perform this skill satisfactorily but requires periodic assistance and/or supervision.

- 3 - Can perform this skill competently without assistance or supervision.
- 4 - Can perform this skill competently with more than acceptable speed and/or quality and can teach the skill to others.

<p>DEMONSTRATE LEADERSHIP SKILLS A</p>
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Provide mentorship	Supervise staff	Conduct employee performance reviews (e.g. annually, quarterly)	Contribute to budget planning	Delegate tasks	Coach
A1	A2	A3	A4	A5	A6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Train staff	Hire staff	Conduct interviews			
A7	A8	A9			
1 2 3 4	1 2 3 4	1 2 3 4			

USE GENERAL LAB
TECHNIQUES
B

Perform Extractions	Perform aseptic techniques	Streak a plate for isolated cultures	Perform serial dilutions	Perform sterilization techniques	Perform spreading techniques
B1	B2	B3	B4	B5	B6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Create standard solutions	Prepare media	Prepare re-agents	Adjust ph levels	Perform shake flask experiments	Use proper pipetting techniques
B7	B8	B9	B10	B11	B12
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Weigh samples	Isolate micro bacterial organisms	Select appropriate lab equipment	Use a U.V. trans illuminator	Isolate viruses	
B13	B14	B15	B16	B17	
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	

DEMONSTRATE SAFE
WORK PRACTICES
C

Follow general safe lab practices	Follow safe lab practices for risk levels 1 to 4	Obtain WHMIS certification	Work w ithin biosafety guidelines	Comply with environmental regulations	Follow ethical guidelines for use of animals
C1	C2	C3	C4	C5	C6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Follow HACCP guidelines	Follow MSDS	Follow health & safety legislation and regulations	Conduct risk assessments	Work in fume hood	
C7	C8	C9	C10	C11	
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	

CONDUCT RESEARCH
& DEVELOP METHODS
& PRODUCTS
D

Design clinical trial protocols D1	Assist in the development of clinical trials / protocols D2	Discuss product life cycle D3	Recruit volunteers for clinical trials D4	Redesign experiments D5	Search online databases D6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Design experiments D7	Interpret results D8	Perform statistical analyses D9	Read and interpret scientific publications D10	Research method validations D11	Optimize methods validation D12
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Execute method validations D13					
1 2 3 4					

DEMONSTRATE
PROFESSIONAL
COMPETENCIES
E

Prioritize tasks E1	Work w ithin deadlines E2	Maintain scientific integrity E3	Interpret MSDS E4	Maintain professional currency E5	Troubleshoot scientific methodology E6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Perform unit conversions E7	Follow S.O.P.S E8	Use basic math skills e.g., concentrations, molarity E9	Work w ithin a budget E10		
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4		

DEMONSTRATE
PERSONAL
COMPETENCIES
F

Work as a team	Work independently	Employ due diligence	Think critically	Solve problems	Maintain personal integrity
F1	F2	F3	F4	F5	F6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Manage time	Learn continuously	Respect diversity	Accept feedback	Respect differing opinions	Ask questions
F7	F8	F9	F10	F11	F12
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

COMMUNICATE
G

Use brainstorming techniques e.g. f.i.s.h.	Present scientific results	Write reports	Use a variety of multimedia tools	Attend to non-verbal queues	Write proposals
G1	G2	G3	G4	G5	G6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Work with internal & external stakeholders	Request technical support	Participate in meetings e.g. staff, lab, union, corporate	Communicate with vendors / suppliers / reps (e.g. quotes, product knowledge)	Write method validation protocols (per industry guidelines)	Network
G7	G8	G9	G10	G11	G12
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Speak at the level of the audience					
G13					
1 2 3 4					

USE A VARIETY OF
LAB EQUIPMENT
H

Use microscopes				Use pressurized gases				Use hema-cytometer				Use spectrophotometer				Use sensititre				Use centrifuge			
H1				H2				H3				H4				H5				H6			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Use sequencer				Use incubator				Use an autoclave				Troubleshoot equipment				Calibrate instruments							
H7				H8				H9				H10				H11							
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

CONDUCT LAB
ANALYSES
I

Collect data				Analyze data				Interpret data				Analyze proteins (e.g. Western blotting method)				Conduct visual analyses of samples				Identify the characteristics of different types of grains (e.g. colour)			
I1				I2				I3				I4				I5				I6			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Assess the quality of grains (e.g. blight, mold, fungus, etc.)				Identify organisms that effect the quality of grains				Perform diagnostic testing on micro organisms				Collect samples (e.g. mosquito larvae, water, soil, etc.)											
I7				I8				I9				I10											
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				

MAINTAIN QUALITY
SYSTEMS
J

Implement corrective actions	Prepare for audits	Develop preventative processes / actions	Create Q.A. systems / processes	Follow Q.A. systems / processes	Accept responsibility for product quality
J1	J2	J3	J4	J5	J6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Participate in audits	Participate in mock recalls	Follow commercial products specifications	Follow GXP guidelines	Conduct audits (i.e., internal and external)	Work within ISO guidelines
J7	J8	J9	J10	J11	J12
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Authorize product release	Assess critical process parameters	Follow environmental protocols	Follow clean room / clean suite protocols	Conduct quality control investigations	Conduct HAZOP analyses
J13	J14	J15	J16	J17	J18
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

PERFORM GENERAL
LAB DUTIES
K

Purchase supplies	Maintain inventory	Manipulate databases	Maintain a clean workspace	Create S.O.P.s	Maintain lab book
K1	K2	K3	K4	K5	K6
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Review documents (e.g. QC and Manufacturing)	Maintain log book				
K7	K8				
1 2 3 4	1 2 3 4				

USE TISSUE CULTURE
LAB TECHNIQUES
L

Work in B.S.C.	Perform cell cryo preservation	Perform tissue homogenization	Maintain cell lines	Perform animal dissections	Perform cell line construction																		
L1	L2	L3	L4	L5	L6																		
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Perform bacterial cloning																							
L7																							
1				2				3				4											

USE MOLECULAR LAB
TECHNOLOGIES
M

Perform PCR	Perform protein purifications	Isolate g-DNA	Perform EITSA	Isolate Plasmid DNA	Isolate RNA														
M1	M2	M3	M4	M5	M6														
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Perform gel electrophoresis		Perform restriction enzyme digestion	Perform micro organism mutations	Perform site directed mutagenesis	Perform bacterial transformation														
M7		M8	M9	M10	M11														
1		2		3		4		1		2		3		4					

USE COMPUTER
SOFTWARE
N

Use industry-specific advanced level data analysis software	Work with shell scripts	Perform advanced level spreadsheet functions	Use statistical analysis software	Use presentation software	Use database software														
N1	N2	N3	N4	N5	N6														
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Use word processing software																			
N7																			
1				2				3				4							