



Program Review
New Position Request Presentation

Position: Physical Sciences/Chemistry

Laboratory Technician

Requested by: Chemistry Department/STEM Division

Chemistry Labs at Cañada College

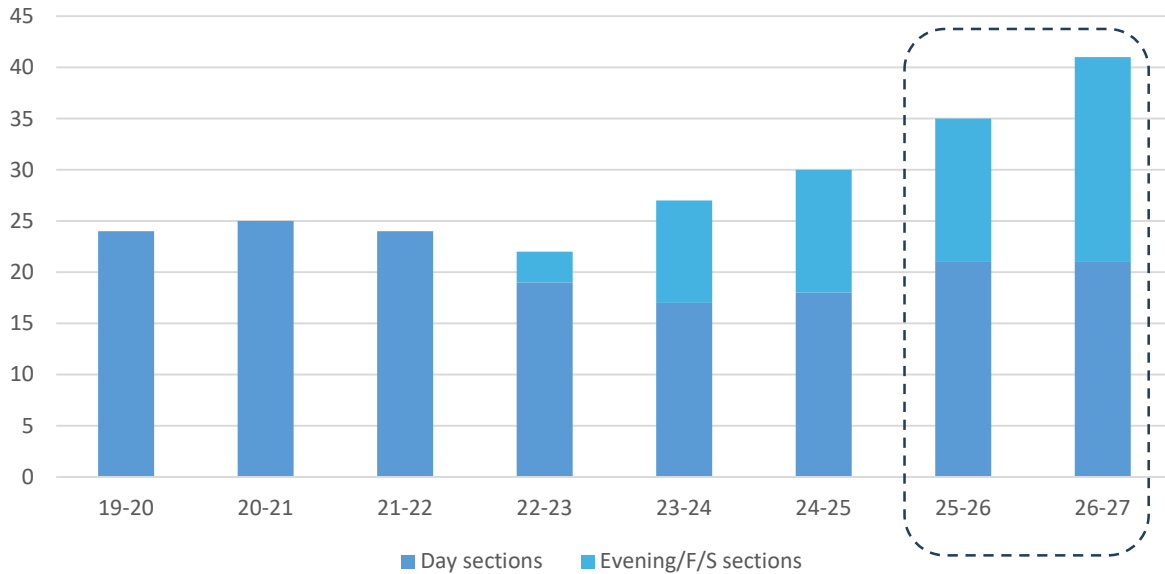
Chemistry Lab Staffing as of Fall 2024:

- Currently, **Physical Sciences** are staffed by 1.4 Stockroom Coordinators:
 - 1 FT staff for Physical Science Stockrooms (CHEM, PHYS, ASTR, ENG)
 - Biology, art, & custodial (auxiliary)
 - 1 FT staff split between Biological Science (60%) and Physical Science (40%)
- Weekly Coordinator Duties for **Chemistry**:
 - Prep, manage, and supervise **21 lab sessions** for 5 different courses.
 - Responsible for the laboratory experience of **~200 students** each week.
 - Purchase equipment/chemicals, manage haz. waste, repair equipment, etc.
- **Chemistry Stockroom** hours:
 - 9am-9pm on M-Th, and 9-4 on Saturdays.
- **Chemistry Labs and Stockrooms** span Building 18 and Building 16
 - LESS than 1.4 personnel for two chemistry stockrooms and three instructional laboratories for a 12hs shift

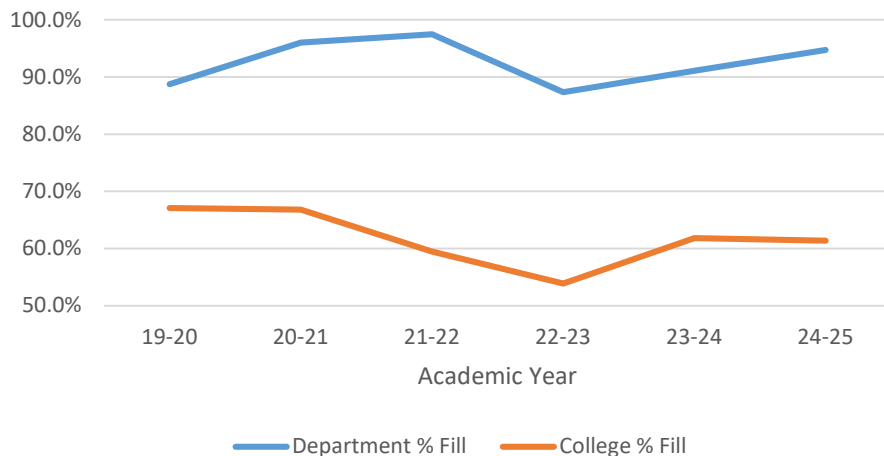


CHEM offering - Increase Student Access

Chemistry Sections per Academic Year



% Fill Rates in Chemistry vs. College



Course Offerings engaging in innovative course scheduling

Year	Sections Count – new innovative scheduling
22 - 23	22 sections - Saturday
23 - 24	27 sections - Evening and Fridays - CHEM 210/220/410
24 - 25	30 sections - Evening CHEM 231/232 Filling rate 95% Closed Friday offering short staff
25 - 26	35 sections (Urgent Expansion)
26 - 27	41 sections (To Guarantee Student Access)

➤ **11.5% increase in Success Rates**
from AY 2022-2023 to AY 2023-2024

Fall 24	Monday			Tuesday			Saturday			Thursday			Friday		Saturday	
	18-305	16-204	18-311	18-305	16-204	18-311	18-305	16-204	18-311	18-305	16-204	311	18-305	18-311	18-305	18-311
8:10 AM	CHEM 210			CHEM 210			CHEM 210			CHEM 210					CHEM 210	
11:10 AM	CHEM 210			CHEM 210			CHEM 210			CHEM 210					CHEM 210	
2:10 PM	CHEM 210			CHEM 231			CHEM 210			CHEM 210					CHEM 210	
6:10 PM	CHEM 231			CHEM 210			CHEM 220			CHEM 410					CHEM 210	

Lab Meeting Schedule 2024 - 2025

Spring 25	Monday			Tuesday			Wednesday			Thursday			Friday		Saturday	
	305	16-204	311	305	16-204	311	305	16-204	311	305	16-204	311	305	311	305	311
8:10 AM	CHEM 220			CHEM 210			CHEM 210			CHEM 210					CHEM 220	
11:10 AM	CHEM 210			CHEM 210			CHEM 210			CHEM 210					CHEM 220	
2:10 PM	CHEM 210			CHEM 410			CHEM 232			CHEM 210					CHEM 220	
6:10 PM	CHEM 210			CHEM 410			CHEM 220			CHEM 232					CHEM 210	

Safety Standards in Chemistry Labs



- "The number of support staff members should be sufficient to allow faculty to devote their time and effort to academic responsibilities and scholarly activities."
 - *-American Chemical Society*



Safety standards in a Chemistry Stockroom

MSDS SAFE

OSHA Brief:
The Hazard Communication Standard (29 CFR 1910.1201), revised in 2012, requires that chemical manufacturers, distributors, or importers provide Safety Data Sheets (SDS) (formerly MSDS or Material Safety Data Sheets) for each hazardous chemical to downstream users to maintain information on these hazards. The information contained on the SDS is largely the same as the MSDS, except now the SDS are required to be presented in a consistent user-friendly 16-section format. This brief provides guidance to help workers who handle hazardous chemicals to become familiar with the format and understand the contents of the SDS.

The SDS includes information such as the properties of each chemical, the physical, health, and environmental hazards, protective measures, and safety precautions for handling, storing, and transporting the chemical. The information contained in the SDS must be in English (although it may be in other languages as well). In addition, OSHA requires that SDS preparers provide specific minimum information as detailed in Appendix D of 29 CFR 1910.1203. The SDS preparer may also include additional information in various sections.

Sections 1 through 8 contain general information about the chemical, identification, hazards, composition, safe handling practices, and emergency control measures (e.g., fire fighting). This information should be helpful to those that need to get the information quickly. Sections 9 through 15 and 18 contain other without and scientific information, such as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information, and other information including the date of preparation or last revision. The SDS must also state what no applicable information was found when the preparer does not find relevant information for any required element.

The SDS must also contain Section 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other agencies.

A description of all 16 sections of the SDS, along with their contents, is presented below.

Section 1: Identification
This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of:
• Product identifier used on the label and any other common names or synonyms to which the substance is known.
• Name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.
• Recommended use of the chemical (e.g., brief description of what it actually does, such as flaring retardant) and any restrictions on use (including recommendations for use that are supported).

Section 2: Hazard(s) Identification
This section identifies the hazard(s) of the chemical prepared on the SDS and the appropriate warning information associated with those hazards. The required information consists of:
• The hazard classification of the chemical (e.g., flammable liquid, category 2).
• Signal word.
• Hazard statement(s).
• Pictograms (the pictograms or hazard symbols may be presented as graphical introductions of the symbols in black and white or a description of the name of the symbol (e.g., skull and crossbones, flame).
• Description of any hazards not otherwise classified.
• For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not just the individual ingredient(s).

Section 3: Ingredients Information
This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:
• Substance name.
• Common name and synonym(s).
• Chemical Abstracts Service (CAS) number and other unique identifiers, impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.
• Mixtures
• Same information required for substances.
• The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
• Present above their cut-off concentration limits or
• Present a health risk below the cut-off concentration limits.
• The concentration (exact percentage) of each ingredient must be specified except concentrations may be used in the following situations:
• A trade secret claim is made.
• There is batch-to-batch variation, or
• The SDS is used for a group of substantially similar mixtures.
Chemicals where a trade secret is claimed
• A statement that the specific chemical identity and/or exact percentage composition of composition has been withheld as a trade secret is required.

Section 5: Fire-Fighting Measures
This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:
• Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular substance.
• Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
• Recommendations on special protective equipment or procedures for firefighters.

Section 6: Accidental Release Measures
This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information consists of:
• Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
• Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
• Methods and materials used for containment (e.g., covering the drains and capping products).
• Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or absorbing, absorbent materials, and/or equipment required for containment/leakage).

Section 7: Handling and Storage
This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:
• Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, and smoking in work areas is prohibited).
• Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on special storage requirements (e.g., ventilation requirements).

Section 8: Exposure Controls/Personal Protection
This section identifies the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:
• OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
• Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in enclosed systems).
• Recommendations for personal protective measures to prevent fires or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
• Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves, and breakthrough time of the glove material).

Section 9: Physical/Chemical Properties
This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:
• Appearance (physical state, color, etc.)
• Upper/lower flammability or explosive limits:
• Flash point.
• Vapor pressure.
• Color/turbidity.
• Vapor density.
• pH.
• Relative density.
• Melting/freezing point.
• Boiling point.
• Solubility(s).
• Initial boiling point and boiling range.
• Evaporation rate.
• Flammability (solid, gas).
• Partition coefficient n-octanol/water.
• Viscosity.
• Decomposition temperature, and
• Viscosity.

Section 10: Stability and Reactivity
This section identifies the stability and reactivity of the chemical or mixture. The required information consists of:
• Stability.
• Reactivity.
• Incompatibility with other materials.
• Hazardous decomposition products.
• Polymerization.
• Inhibitors.
• Oxidizing potential.
• Self-heating potential.
• Reactivity with water.
• Reactivity with acids.
• Reactivity with bases.
• Reactivity with oxidizers.
• Reactivity with reducers.
• Reactivity with metals.
• Reactivity with non-metals.
• Reactivity with organic materials.
• Reactivity with inorganic materials.
• Reactivity with other materials.

Section 11: Toxicological Information
This section identifies toxicological and health effects information on the chemical or mixture. The required information consists of:
• Information on the early routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.
• Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
• The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)), the estimated amount (of a substance) expected to kill 50% of test animals in a single dose.
• Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.
• Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report or Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition) or found to be a potential carcinogen by OSHA.

Section 12: Ecological Information
This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:
• Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).
• Where there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.
• Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient (K_{ow}) and the bioconcentration factor (BCF), where available.
• The potential for a substance to move from the soil to the groundwater (indicate tests from adsorption studies or leaching studies).
• Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential). Environmentally sensitive areas.

Section 13: Disposal Considerations
This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Personal Protective Equipment) of the SDS. The information may include:
• Description of appropriate disposal containers to use.
• Recommendations of appropriate disposal methods to employ.
• Description of the physical and chemical properties that may affect disposal activities.
• Language discouraging sewer disposal.
• Any special precautions for landfills or incineration activities.

Section 14: Transport Information
This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:
• UN number (i.e., four-digit identification number of the substance(s)).
• UN proper shipping name.
• Transport hazard class(es).
• Packing group number, if applicable, based on the degree of hazard.
• Environmental hazard (e.g., solid, liquid, or gas) according to the International Maritime Dangerous Goods Code (IMDG Code).
• Guidance on transport in bulk (including to areas of IATA/IATA/1753 and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code (IBC Code)).
• Any special precautions which an employee should be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises (indicate when information is not available).

Section 15: Regulatory Information
This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include:
• Any national and/or regional regulatory information of the chemical or mixture including any OSHA, Department of Transportation, Environmental Protection Agency, or Consumer Product Safety Commission regulations.

Section 16: Other Information
This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

Employer Responsibility:
Employers must ensure that the SDS are readily accessible to employees for all hazardous chemicals in their workplace. This may be done in many ways. For example, employees may keep the SDS in a binder or on computers as long as the employees have immediate access to the information without leaving their work area when needed and a back-up is available for rapid access to the SDS in the case of a power outage or other emergency. Furthermore, employers may need to designate a person(s) responsible for obtaining and maintaining the SDS. If the employer does not have an SDS, the employer or designated person(s) should contact the manufacturer to obtain one. Disclaimer: Merhoff and Larkin LLC is not liable for the accuracy and correctness of this poster; employees are responsible for displaying correct and current information of OSHA regulations.

Section 17: Hazardous Waste
This section identifies the chemical or mixture as a hazardous waste. The required information consists of:
• Identification of the chemical or mixture as a hazardous waste.
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Section 18: Other Information
This section identifies the chemical or mixture as a hazardous waste. The required information consists of:
• Identification of the chemical or mixture as a hazardous waste.
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Disproportionate Chemistry Staffing is Unsafe

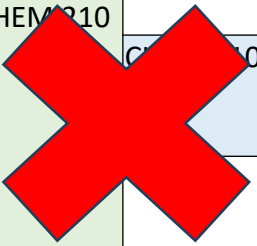


**Safety risks
= Liability**



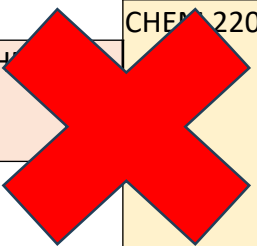
**For Students,
Faculty and
College.**

Fall	Monday			Tuesday			Wednesday			Thursday			Friday		Saturday	
	305	16-204	311	305	16-204	311	305	16-204	311	305	16-204	311	305	311	305	311
8:10 AM																
	CHEM 210			CHEM 210			CHEM 210			CHEM 210				CHEM 410		CHEM 210
11:10 AM		CHEM 220				CHEM 231			CHEM 220			CHEM 231	CHEM 192			CHEM 210
														CHEM 410		CHEM 210
2:10 PM	CHEM 210			CHEM 210			CHEM 210			CHEM 210						
6:10 PM	CHEM 210	CHEM 220	CHEM 231	CHEM 210	CHEM 220	CHEM 231	CHEM 210	CHEM 220	CHEM 231	CHEM 210	CHEM 220	CHEM 410				



Sample Schedule

Spring	Monday			Tuesday			Wednesday			Thursday			Friday		Saturday	
	305	16-204	311	305	16-204	311	305	16-204	311	305	16-204	311	305	311	305	16-204
8:10 AM																
		CHEM 220							CHEM 220			CHEM 232		CHEM 410		CHEM 220
11:10 AM	CHEM 210		CHEM 231	CHEM 210		CHEM 232	CHEM 210	CHEM 220	CHEM 231	CHEM 210			CHEM 192		CHEM 210	CHEM 220
														CHEM 410		CHEM 220
2:10 PM					CHEM 220						CHEM 220					
6:10 PM	CHEM 210	CHEM 220	CHEM 231	CHEM 210	CHEM 220	CHEM 231	CHEM 210	CHEM 220	CHEM 231	CHEM 210	CHEM 220	CHEM 410				

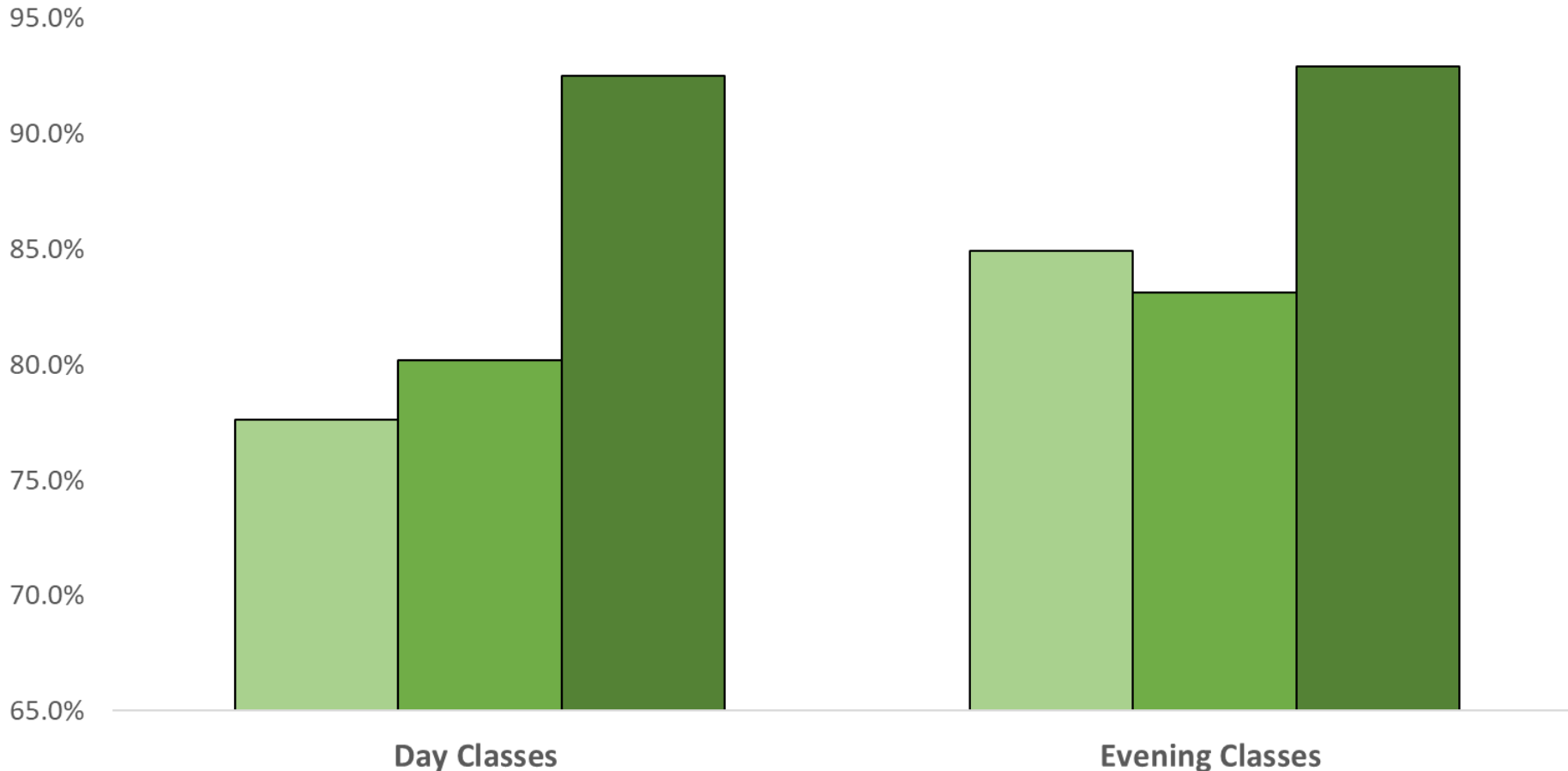


Impacts of Denying this Request

Retention Rates (%) of Underserved Student Demographics by Course Time

Cañada College, AY 2023-2024

Hispanic Student Retention Rate (%) Students Age 23+ Retention Rate (%) AANAPI Student Retention Rate (%)



Evening chemistry labs have higher retention rates:

➤ **Hispanic Students +9.41% Retention**

➤ **Resuming or Non-Trad. Students +3.62% Retention**

...and increase High School Student enrollment!