WATER RESOURCES MANAGEMENT (WRM) COURSES

WRM 301 3 Units
California Water History
Lecture: 54 contact hours
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course provides water technology students with a practical study of the history of water resources management, focusing on regulatory and reliability requirements that meet diverse customer, public health, ecological, and economic needs. Key topics include wetlands, dams, aqueducts, and the impact of land ownership on urban and rural communities in California. A strong emphasis will be placed on diversity, equity, and inclusion, ensuring that the perspectives of various communities are represented and valued in discussions about water resources. Current water industry best practices, relevant case studies, and the politics of water will be discussed and demonstrated throughout the course. Additionally, new and emerging technologies will be examined for producing fit for purpose water, highlighting innovative solutions that promote equitable access and sustainability for all communities. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 302 3 Units
Introduction to Water Resources Management
Lecture: 54 contact hours
Prerequisite: WRM 301
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course offers an overview of water resources management principles, focusing on sustainable use, ethical considerations, and the intersection of policy and economics. It examines California's water resources through the lens of diversity, equity, and inclusion, addressing how water usage impacts marginalized communities. Key topics include water quality, pollution, regulations affecting public drinking water, watershed management, and hydrology. The course also explores alternative water sources and conservation methods that promote sustainability and social justice. By emphasizing diverse voices, students will gain the knowledge and skills to advocate for inclusive solutions in water resources management. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 310 3 Units
Applied and Professional Ethics in the Water Sector
Lecture: 54 contact hours
Prerequisite: WRM 302
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course examines the intersection of effective leadership and ethical decision-making in the water utility sector, with a focus on diversity, equity, inclusion, and anti-racism. Students will explore transformative leadership qualities and the challenges of fostering equitable community engagement. The course emphasizes proactive engagement with diverse stakeholders, recognizing the importance of inclusive dialogue in addressing ethical complexities in water management. Through the analysis of real-world dilemmas, students will develop analytical skills, and a values framework centered on justice and sustainability. By the end of the course, participants will be equipped to navigate the ethical landscape of the water sector, advocate for marginalized voices, and implement solutions that promote social responsibility and equity. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 315 3 Units
Technology and Public Administration
Lecture: 54 contact hours
Prerequisite: WRM 302
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course explores managerial aspects of technology in relation to Information security and governance focused on WRM, and diversity, equity, and inclusion. Students will examine the challenges of IT and operational technology (OT) networks, particularly under the legal framework of America's Water Infrastructure Act (AWIA), and learn to identify vulnerabilities, plan cybersecurity policies, and assess risks related to water quantity, quality, regulations, and public trust. The course also emphasizes the role of cybersecurity in protecting data, safeguarding infrastructure, and ensuring equitable access to reliable water services. Students will develop formal cybersecurity policies, acceptable use policies for sustainable water resources management, and security awareness training tailored to water utility organizations. By integrating principles of anti-racism, students will analyze the intersection of water policy, technology, and environmental indicators to promote equitable outcomes and inclusive practices in water resources management. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 320 3 Units
Strategic Planning in the Water Sector
Lecture: 54 contact hours
Prerequisite: WRM 302
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
In this course, students will examine how water agencies establish strategic goals and objectives to effectively manage a diverse array of business risks. This includes understanding interdependence with other services and utilities, as well as addressing legal, regulatory, financial, environmental, and safety considerations in alignment with industry trends and system reliability targets. Emphasizing principles of diversity, equity, inclusion, and anti-racism, students will analyze how these factors influence water resources management and access for marginalized communities. They will also develop inclusive plans to address potential water resource variability, such as shifting weather patterns and extreme events like droughts and floods. Through this process, students will engage in long-term integrated water management strategies that prioritize the equitable distribution of water resources to meet the needs of current and future customers, communities, and society as a whole. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 325 3 Units
Water Resources Economics
Lecture: 54 contact hours
Prerequisite: ECON C2001 or ECON C2001H or ECON C2002 or ECON C2002H and WRM 302
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resource Management.
This course provides an inclusive introduction to economic theory, focusing on microeconomic and macroeconomic principles related to water resource management. Students will explore theoretical frameworks that highlight access constraints for diverse communities and examine how energy extraction, production, and climate change disproportionately affect marginalized populations and endangered species, emphasizing the link between environmental justice and economic policy. Students will also apply economic valuation techniques and impact assessments that prioritize equity and sustainability. By analyzing various frameworks, they will learn to evaluate the social and environmental implications of water management decisions, enhancing their ability to advocate for fair access to resources and promote sustainable practices. Incorporating diverse perspectives and anti-racist frameworks, the course aims to equip students with the tools to develop equitable planning and development strategies that address societal and environmental challenges in water resource management. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 330 3 Units
Water Law
Lecture: 54 contact hours
Departmental Recommendation: WRM 301
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course provides a comprehensive overview of water law in the United States, examining the legal frameworks surrounding water ownership, rights, and management. Students will explore historical and contemporary conflicts involving American Indian tribes and state governments, focusing on groundwater-surface water interactions. Key topics include the evolution of water rights, the Public Trust Doctrine, and landmark cases such as Irwin v. Phillips and Arizona v. California. The course addresses issues of water scarcity, management strategies, and the impact of environmental laws like the Endangered Species Act. Through case studies and legal analysis, students will develop critical thinking skills and gain a thorough understanding of the legal, economic, and environmental aspects of water resources management, preparing them for careers in law, policy, and environment. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 335 3 Units
Tribal Water Rights
Lecture: 54 contact hours
Departmental Recommendation: WRM 330
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course provides an in-depth examination of the regulatory frameworks governing tribal water rights, focusing on the interplay between tribal, federal, state, and regional authorities in relation to the development of tribal lands as established by statutes and treaties. Students will investigate the philosophical foundations of water rights, alongside significant case law pertaining to water rights litigation, to enhance negotiations for tribal water rights. Special emphasis will be placed on understanding the federal-tribal trust relationship and the doctrine of reserved rights in the context of water. Additionally, the course will address the engineering and economic factors essential for effective water delivery systems. Through this comprehensive approach, students will gain a nuanced understanding of the complexities surrounding tribal water rights. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 340 3 Units
International Environmental Policy
Lecture: 54 contact hours
Prerequisite: WRM 302
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course examines the relationship between global environmental issues and international governance. Students will explore the concept of the global environment, including international commons like air, sea, and outer space, as well as the cultural and historical contexts of environmental challenges. Key topics include evaluating global environmental threats, responses to these issues, and the legal frameworks governing environmental policy. Students will analyze the roles of various actors, such as governments, non-governmental organizations (NGOs), multinational corporations, and the United Nations Environmental Program. The course will focus on cooperation under scarcity, particularly regarding water rights and climate change, and the core values of environmental policy, including climate protection and biodiversity preservation. Additionally, students will study the effectiveness of international law in environmental matters, including principles, treaties, and enforcement challenges. The course will culminate in discussions on future global environmental strategies and compliance mechanisms. Finally, students will be well-prepared to address the complexities of international environmental policy in various professional contexts. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 401 3 Units
Managing Public Organizations in the Water Sector
Lecture: 54 contact hours
Prerequisite: WRM 302 and WRM 315
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course centers on the management of public organizations in the water sector. Students will examine the legal constraints, political processes, and intergovernmental arrangements that shape water resources policies, with a strong focus on promoting justice for marginalized communities. Key topics include theoretical foundations and practical techniques for program evaluation, such as needs assessments, outcome evaluations, surveys, and impact evaluations. The course will emphasize strategic interventions that drive equitable change and improve the design and implementation of programs that effectively serve all communities. Additionally, students will learn the importance of inclusive stakeholder engagement, ensuring that diverse voices are considered in water resources management. Ultimately, this course aims to equip future leaders with the skills and perspectives necessary to develop equitable water management solutions that address the needs of all citizens. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 402 3 Units
Water Resources Management and the Public Policy Process
Lecture: 54 contact hours
Prerequisite: WRM 302 and WRM 330
Departmental Recommendation: WRM 310
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course provides students with a comprehensive understanding of the public trust framework and the policy processes involved in developing and analyzing a diverse range of water policy issues. Students will critically examine the public policy process from multiple theoretical and practical perspectives, emphasizing the importance of diversity, equity, inclusion, and anti-racism in water infrastructure management. Students will differentiate between technical, legal, and financial policy types essential for managing water-related projects. Key topics will include policy development, organizational theory and behavior, and stakeholder relations, with a strong focus on how these elements can be leveraged to promote equitable access to water resources. Discussions will also cover challenges related to reservoirs, reuse, disposal operations, and the needs of marginalized communities, preparing students to advocate for inclusive and sustainable water management solutions. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 420 3 Units
Human Resources Administration in the Water Sector
Lecture: 54 contact hours
Prerequisite: WRM 401
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course explores human resource policy and practices within the water sector, focusing on the principles of personnel administration while emphasizing the importance of diversity, equity, inclusion, and anti-racism. Students will engage with traditional aspects of human resource management, including recruitment, job classification, evaluation, and compensation, while also addressing contemporary topics such as workforce diversity, equitable staffing practices, drug abuse, whistleblowing, sexual discrimination, and other critical issues. Our exploration will include analyzing behavioral and societal determinants that impact human resources in the water sector, such as demographics, economic factors, community sustainability, and the mandates of water service purveyors. We will critically examine how government regulations and policies can promote or hinder equitable practices and ensure inclusive environments that support all employees and communities served. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 430 3 Units
Water Sector Leadership and Diversity
Lecture: 54 contact hours
Prerequisite: WRM 302 and WRM 420
Departmental Recommendation: WRM 310
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course explores leadership dynamics within the water sector, focusing on ethical practices, organizational change, and diversity. Students will examine moral leadership challenges, various leadership styles, and strategies for developing effective leadership skills that promote ethical decision-making. Key topics include managing organizational change, fostering a learning-oriented culture, and understanding the socio-technical issues that influence growth. The course emphasizes actionable diversity goals, unconscious bias, and the economic benefits of inclusion. Students will evaluate organizational policies to identify toxic cultures and develop strategies for a healthy workplace. The course concludes with techniques for engaging underrepresented groups in diversity recruiting and creating an inclusive employer brand. By the end, students will be equipped to lead with moral courage and implement effective diversity initiatives, enhancing their impact in the water sector. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 440 3 Units
Collective Bargaining and Labor Relations
Lecture: 54 contact hours
Prerequisite: WRM 302 and WRM 420
Departmental Recommendation: WRM 330
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course explores the intricate dynamics of organizational leadership and union relations within the public water sector, emphasizing diversity, equity, inclusion, and anti-racism. Students will conduct a comprehensive analysis of labor law, union structures, and organizing practices, delving into collective bargaining processes such as work rules, legislative statutes, adjudication, mediation, and arbitration. Key topics will highlight the critical role of diverse voices in labor movements and the importance of equitable representation in union leadership. The course will also examine the evolving landscape of labor laws, shaped by court decisions, National Labor Relations Board (NLRB) rulings, and the changing nature of union-management relations. Special attention will be paid to how these developments affect diverse groups within the workforce, enhancing understanding of the intersections of race, gender, and socioeconomic status in labor-related issues. Ultimately, this course aims to prepare future leaders in the water sector to advocate for social justice and embody anti-racist principles in their leadership and union practices. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 460 3 Units
Water Resources Budgeting and Financial Management
Lecture: 54 contact hours
Prerequisite: WRM 310 and WRM 401
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course offers a focused exploration of governmental budgeting concepts and practices at national, state, and local levels, emphasizing diversity, equity, inclusion, and anti-racism within the water sector. Students will develop essential technical skills while examining the interconnections between planning, programming, and budgeting strategies. Key topics include creating capital improvement plans that prioritize diverse community needs, administering grant programs that equitably distribute resources, and conducting water audits to reduce unaccounted water loss in underserved areas. The course also covers strategies for negotiating fair water rates, analyzing operations and maintenance expenditures to ensure reliable service for all, and exploring ethical debt management practices that engage diverse stakeholders. Finally, students will learn about the municipal bond market and how to issue debt that supports equitable infrastructure development. By integrating these elements, the course prepares students to be responsible leaders in the water sector, committed to fostering equity and sustainability in capital budgeting and debt management. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 495 3 Units
Research Methods in Water Resources Management
Lecture: 54 contact hours
Prerequisite: ENGL 300 and WRM 460
Departmental Recommendation: GIS 400
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
This course examines scientific research and modern water resources management through the lens of diversity, equity, inclusiveness, and anti-racism. Students will explore methodologies, field research, ethics, academic writing, and public presentation while addressing challenges faced by diverse communities. The course develops skills in applying organizational theories, navigating intergovernmental relations, and interpreting policies through an anti-racist framework. Students will analyze water policy issues, consider solutions to systemic inequalities, and address socio-economic impacts on underrepresented populations. Emphasizing sustainable and equitable water resources management, the course prepares students to advocate for just practices that serve the diverse needs of society. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 498 3 Units
Internship in Water Resources Management
WRKEX: 162 contact hours
Prerequisite: ENGL 300 and WRM 401 and WRM 420 and WRM 460
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
The Internship in Water Resources Management provides students with practical placements in water-related non-profit organizations and governmental agencies, allowing them to apply theoretical concepts from their courses while developing skills in organizational leadership and integrated water resources management. Students will learn to navigate intergovernmental relations, interpret policies, analyze water issues, and explore fiscal management within real-world public service contexts, all under faculty supervision. During the internship, students will enhance their cultural competence by engaging with diverse colleagues and clients, analyzing equity and inclusion issues, and recommending strategies for creating inclusive environments. They will assess instances of systemic racism and propose actionable strategies to promote anti-racist practices. Collaborating with peers and supervisors, students will improve their teamwork skills and work toward common goals in the water sector. They will document their experiences in a formal report, reflecting on how diversity, equity, and inclusion principles have influenced their professional growth. By building professional networks and applying critical thinking, students will tackle challenges related to diversity and equity in water management, preparing them to be informed and responsible leaders in the field. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 499A 3 Units
Applied Research (Capstone) Project in Water Resources Management
DIR: 162 contact hours
Prerequisite: ENGL 300 and WRM 401 and WRM 460
Departmental Recommendation: GIS 400
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management.
The Integrated Capstone in Water Resources Management empowers students to synthesize knowledge from core and concentration courses while developing skills in organizational leadership and integrated water resources management. Students learn to navigate intergovernmental relations, interpret policies, analyze water issues, and explore fiscal management within the water sector. Emphasizing professionalism, ethical practices, and the importance of diversity, equity, inclusion, and anti-racism, the course engages students in projects that highlight policy and planning processes. They will develop critical thinking skills to enhance social justice and environmental equity. The capstone culminates in original applied research addressing real-world water management issues. Students choose research topics that reflect their interests and a commitment to equity for historically marginalized communities. This course offers a comprehensive experience, allowing students to demonstrate mastery of program outcomes through an original field-based project. (Bachelor Degree Applicable)
Transfers to CSU only

WRM 499B 3 Units
Comprehensive Written Exam in Water Resources Management
Lecture: 54 contact hours
Prerequisite: ENGL 300 and STAT 300 and WRM 301 and WRM 302 and WRM 310 and WRM 401 and WRM 402 and WRM 420 and WRM 460 and WRM 495
Limitation on Enrollment: Associate degree in Water Technology or an equivalent field along with acceptance into the Bachelor of Science program in Water Resources Management and department consent.
This course challenges students to critically reflect on their learning and experiences in water resources management. It encourages them to synthesize and integrate their knowledge, skills, and insights across key topics in the discipline, rather than focusing solely on specific course deliverables. The course revisits foundational concepts, principles, and essential knowledge from the program's coursework. Key topics include organizational leadership, integrated water resources management, intergovernmental relations, fiscal management in the water sector, water policy and planning processes, and the promotion of social justice and environmental equity. This reflective approach aims to deepen students' overall understanding of water resources management, fostering a holistic perspective on the field. The course culminates in a comprehensive written examination that assesses students' mastery of core coursework and their ability to apply their knowledge in real-world contexts. Advancement to candidacy for examination (completion of all core courses and concentration areas requirements) and consent of instructor. (Bachelor Degree Applicable)
Transfers to CSU only