

Career Path Research Programmer Analysts

April 2010

JCC Title	Qualifications	Grade	FLSA	JCC Number	Job summary (all job qualifications and responsibilities are cumulative in nature)
Research Programmer Analyst	<p>Bachelor's degree in information systems or computer science and knowledge of research techniques applicable to the development and validation of complex computer-based systems or equivalent combination of training and experience. Knowledge of the specific domain application areas and their methods, such as artificial intelligence, data systems, machine learning, robotics and human-computer interaction and up to three years experience in computer systems or complex application programming, preferably in a research and development team setting.</p> <p>Preferred: Additional course work in software engineering methods and project-oriented classes developing group designed and implemented computer applications and/or systems. Knowledge of system development environments such as VxWorks for real-time systems and Matlab for interactive development of algorithms, data visualization, image processing, and statistics for data analysis. Two or more years experience in research programming; some experience in programming artificial intelligence or relational database applications, and use of program development environments and version control software.</p>	59	Exempt	4554 - new	Responsible for developing experimental research applications and modifying existing software for specific research applications based on knowledge of the theoretical foundations of information and computation including algorithms and data structures, and the application of state-of-the art programming methodology and languages for their implementation and application in computer-based systems; provides consulting services to researchers relative to software technology and capability.
Senior Research Programmer Analyst	<p>Bachelor's degree in information systems or computer science and knowledge of research techniques applicable to the development and validation of complex computer-based systems or equivalent combination of training and experience. Contributory knowledge of the specific domain application areas and their methods, such as artificial intelligence, data systems, machine learning, robotics and human-computer interaction. Three or more years of research programming experience in a program/system specification, design and implementation environment. Experience in programming computer science based artifact systems, such as those for artificial intelligence, database and storage systems or machine learning applications. Experience in the development of local and networked (e.g., WWW-based) services. Have an established record of correctly and timely produced system or application components and a number of independently produced (designed and implemented) large modules.</p> <p>Preferred: Masters level course work in computer science disciplines such as machine learning, language translation, robotics or human-computer interaction. Four to five years of combined experience in research or systems program creation in industrial and academic environments.</p>	61	Exempt	4555 - new	Responsible for designing and developing experimental research applications as well as modifying existing software for specific research applications based on knowledge of the theoretical foundations of information and computation including algorithms and data structures, and the application of state-of-the art programming methodology and languages for their implementation and application in computer-based systems. Provides in depth consulting services to researchers and other users relative to software technology and system capabilities.

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Draft JCC Title	Qualifications	Grade	FLSA	JCC Number	Job summary (qualifications and responsibilities are cumulative in nature)
Principal Research Programmer Analyst	<p>Master's degree in information systems or computer science or computational biology or computer, mechanical or electrical engineering applicable to the development and validation of complex computer-based systems. Knowledge of research techniques or equivalent combination of training and experience. In depth knowledge of the specific domain application areas and their methods, such as artificial intelligence, data systems, machine learning, robotics and human-computer interaction. Six or more years of research programming experience in a program/system specification, design and implementation environment. Experience in programming computer science based artifact systems, such as those for artificial intelligence, database and storage systems or machine learning applications. Experience in the development of local and networked (e.g., WWW-based) services. Have a portfolio of correctly and timely produced systems or applications and a number of independently produced (designed and implemented) large modules. One or more years of team leadership and project management experience.</p> <p>Preferred: Seven years experience in research programming. Significant project management and team leadership with responsibility for staffing, budgets and schedules in industrial and/or academic environments.</p>	64	Exempt	4556 - new	<p>Responsible for applying expertise in computer program and system specification, design, planning, implementation and validation for complex research projects. Applies application domain knowledge to the assessment of performance requirements and alternative approaches. Investigates and analyzes feasibility and project resource requirements and makes recommendations for the manpower staffing and schedule. Plans the full range of programming actions to produce several interrelated but different systems from numerous and diverse data elements which are usually from different sources; solves difficult programming and system integration problems crossing commercial, other academic or public, and project developed software. Uses knowledge of pertinent system software, related applications, development environments, computer equipment research processes, regulations, etc. Assists in the preparation and presentation of technical papers. Presents results and discusses follow-on efforts with industrial and government sponsors.</p>
Research Programming Project Director	<p>Master's degree in information systems or computer science or computational biology or computer, mechanical or electrical engineering applicable to the development and validation of complex computer-based systems. Knowledge of research techniques or equivalent combination of training and experience. In depth knowledge of the specific domain application areas and their methods, such as artificial intelligence, data systems, machine learning, robotics and human-computer interaction. Courses or training in project management, team leadership, contracts and personnel management. In depth knowledge of research protocol. : At least six years of research programming experience comparable to that required of a Principal Research Programmer/Analyst, as well as 1 or more years experience in a project leadership role in a technical prototype or product development environment.</p> <p>Preferred: Ph.D. or equivalent combination of experience and training. 7 years experience in research programming. Two to three years experience in project leadership or management with responsibility for staffing, budgets and schedules in industrial and/or academic environments.</p>	66	Exempt	4557 - new	<p>Assigns, directs, reviews and supervises the work of project members to ensure that project specifications have been met towards achieving the larger research goals. Responsible for defining solutions to complex scientific problems, specifically, computational or other highly complex programming and system integration problems and generating overall forecasts for project deliverables and projections for budgets, staffing and schedules. Assist in the preparation and presentation of technical papers. Presents results and negotiates follow-on efforts with industrial and government sponsors.</p>