



## **Research Program Specialist 3 (Geographic Information Systems)**

**Exam Code: 4PB12**

**Department:** State of California

**Exam Type:** Servicewide, Open

**Final Filing Date:** Continuous

**This exam will be discontinued effective August 11, 2018**

### **CLASSIFICATION DETAILS**

**Research Program Specialist 3  
(Geographic Information Systems) –** \$6,595.00 - \$8,254.00 per month.

View the [classification specification](#) for the Research Program Specialist 3 (Geographic Information Systems) classification.

### **APPLICATION INSTRUCTIONS**

Final Filing Date: Continuous

#### **Who Should Apply:**

Applicants who meet the minimum qualifications as stated on this bulletin may apply for and take this examination.

Once you have taken this examination, you may not retake it for **twelve (12) months**.

#### **How To Apply:**

The link to connect to the Training and Experience Evaluation is located farther down on this bulletin in the "Taking the Exam" section.

#### **Special Testing Arrangements:**

If you require special testing arrangements due to a verified disability or medical condition, please contact:

California Department of Human Resources

Bulletin Date: 7/25/2018

CalCareer Service Center  
1810 16<sup>th</sup> Street  
Sacramento, CA 95814

Phone: (866) 844-8671

Email: [CalCareer@CalHR.CA.GOV](mailto:CalCareer@CalHR.CA.GOV)

California Relay Service: 7-1-1 (TTY and voice)

TTY is a Telecommunications Device for the Deaf, and is reachable only from phones equipped with a TTY Device

## MINIMUM QUALIFICATIONS

All applicants must meet the education and/or experience requirements as stated on this exam bulletin to be accepted into the examination. Part-time or full-time jobs, regardless of whether paid or volunteer positions, and inside or outside California state service will count toward experience.

### **Research Program Specialist 3 (Geographic Information Systems)**

Experience and education which provide the ability to independently and successfully perform the most complex research and analysis projects involving various types of digital spatial data and techniques and methodologies associated with Geographic Information Systems. **And**

#### **Either 1**

One year in California state service performing research duties at a level of responsibility equivalent to that of Research Program Specialist II (Geographic Information Systems).

#### **Or 2**

Experience: Five years of progressively responsible technical research experience above the trainee level engaged in the collection, evaluation, compilation and analysis of digital spatial data. (A Doctoral Degree in Geography or a research-oriented field may be substituted for two years of the required experience. A master's degree in the above field may be substituted for one year of the required experience.) (Experience in California state service applied toward this requirement must include one year of experience in a class at a level of responsibility equivalent to Research Program Specialist II.) **And**

Education: Graduation from college with any major but with extensive course work in geography or a related field. This education must include a combined total of at least six semester hours in geographic analysis techniques.

## **POSITION DESCRIPTION**

### **Research Program Specialist 3 (Geographic Information Systems)**

Research Program Specialists are responsible for independently planning, organizing, and conducting complicated studies in a variety of areas, requiring knowledge and abilities beyond the journey level, which affect programs or systems development within the State. Incumbents in these classes provide expert consultative services on the feasibility, impact, or potential of a variety of State operations, projects, or proposals to interested parties. They advise management, departmental staff, legislative bodies, governmental entities, commissions, and agencies on findings related to the assigned area of research.

Incumbents may direct a small staff on a periodic basis. Special parenthetical requirements must be met in addition to requirements for Research Program Specialist (General). Emphasis is on independent research skills, with a background in a specific occupational area required. The term research as applied to this class series is defined as systematic, critical, intensive investigation directed toward either a more comprehensive knowledge of the subject or for use in the resolution of program-related issues. This does not include library research solely to gather information; preparing and designing plans, projects, and specifications for transportation or construction projects; or scientific research in laboratories.

Entry into this series typically comes at the entry level from college recruitment sources, or through related State classifications at a lower level. Normally each professional discipline area will have its own separate class (es) which are designated by use of one or more of the specified levels followed by a parenthetical designation of the program specialty. Each special program incorporated into this specification will utilize only the class (es) that appropriately describe the type and level of work performed, and the duties and responsibilities assigned to positions which are comparable to the appropriate level(s) described in this series specification.

### **Scope**

Incumbents in this parenthetical specialty serve as the principal departmental staff person possessing knowledge in the techniques and methodologies utilized in Geographic Information Systems. They may perform in a lead capacity on complex research projects involving spatial analysis. They are expected to design and test complex spatial data bases to provide data for departmental program operation and for policy analysis, and to work cooperatively with other professionals concerned with Geographic Information Systems and other advanced digital mapping and database management techniques.

## EXAMINATION SCOPE

This examination consists of the following components:

**Training and Experience Evaluation** – Weighted 100% of the final score.

The examination will consist solely of a **Training and Experience Evaluation**. To obtain a position on the eligible list, a minimum score of 70% must be received. Applicants will receive their score upon completion of the Training and Experience Evaluation process.

In addition to evaluating applicants' relative knowledge, skills, and ability, as demonstrated by quality and breadth of education and/or experience, emphasis in each exam component will be measuring competitively, relative job demands, each applicant's:

Knowledge of:

1. Research design methods to conduct research projects and evaluation studies.
2. Data collection methods (e.g., survey, interviews) to ensure the proper use and validation of the research results.
3. Appropriate sampling techniques required to produce statistically reliable and valid research results.
4. Practices required to ensure and maintain data security, including securely transmitting confidential data.
5. Principles and concepts of geography, cartography, geospatial processing, and computer mapping to conduct research and respond to policy questions.
6. The principles and procedures of geospatial data collection, management, and analysis to conduct research and respond to policy questions.
7. Advanced automated processes for capturing data and applying quality control procedures to design and implement research projects.
8. Enterprise Geographic Information Systems (GIS) principles to ensure efficient data management (e.g., data security, versioning, accessibility, recovery).
9. Web-based Geographic Information Systems (GIS) principles to develop, collect, and disseminate geospatial data and services.
10. Spatial analysis techniques (e.g., overlay, network analysis, cost surfaces, 3D modeling) to address important policy, program evaluation, and other research questions.
11. Programming languages (e.g., Python, Java, C++) and conceptual design tools (e.g., ModelBuilder, Visio) commonly used for automating spatial processes and model development.
12. Remote sensing technology (e.g., Lidar, aerial photography, satellite imagery) to capture appropriate geospatial data to perform analyses and support research.

13. Descriptive statistical analysis techniques (e.g., mean, median, mode) to formulate conclusions and recommendations.
14. Inferential statistical analysis techniques (e.g., t-test, bivariate/multivariate regression analysis) to test research hypotheses and to formulate conclusions and recommendations.
15. Geospatial software (e.g., ArcGIS, InterGraph, ArcPad, ERDAS, Google Earth) to capture, analyze and display spatial data.
16. Geospatial hardware devices (e.g., Global Positioning System, mobile Geographic Information Systems, plotters, range finders, base stations) to capture, analyze and display spatial data.
17. Software used to create visual process flow charts (e.g., Visio, Word).
18. Current leadership techniques and their application to ensure effective oversight of project team members.

Ability to:

1. Conduct a literature review using various resources (e.g., library, internet) to compile information and data from academic journals, research publications, and online sources.
2. Develop and/or administer survey instruments (e.g., questionnaires, interview questions, survey forms) to collect information and data relevant to specific research goals and objectives.
3. Design and develop research methodologies required to ensure the collection and analysis of appropriate, meaningful, and unbiased data.
4. Conduct program evaluation studies including the systematic analysis of program requirements, goals, and outcomes to ensure program effectiveness.
5. Identify required data, information, materials, and resources needed to complete a project.
6. Present complex quantitative data visually using charts, graphs, tables, and other appropriate methods in order to complete reports and/or develop presentations.
7. Use the principles and procedures of geospatial data collection, management, and analysis to conduct research and respond to policy questions.
8. Design and implement advanced automated processes for capturing data and applying quality control procedures to design and implement research projects.
9. Identify spatial data needs for complex analyses and to assess the adequacy of existing data to meet these needs.
10. Verify, validate, and assess the accuracy of geospatial data to meet project needs.
11. Utilize web-based Geographic Information Systems (GIS) to display geospatial data and analytical results.
12. Design geospatial databases for standardization and usability.

13. Present complex quantitative and geospatial data visually using maps in order to complete reports and/or develop presentations and posters.
14. Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to research problems.
15. Determine how a system or process works and how changes in inputs, operations, and environmental conditions would affect outcomes.
16. Use sound research methods and principles to reach conclusions and/or make recommendations.
17. Analyze and evaluate the impact of programs, procedures, business processes, and/or policies.
18. Analyze statistical data to reach sound conclusions and/or make recommendations.
19. Interpret data obtained through formal data gathering techniques (e.g., surveys, questionnaires, and interviews).
20. Proofread and edit written materials (e.g., memos, letters, reports, procedures) to ensure that they are accurate and clear.
21. Read and comprehend complex or technical information in order to interpret or explain it to others.
22. Communicate information clearly and concisely, in writing, to audiences with varying levels of understanding.
23. Write reports, policies, and procedures using proper grammar, punctuation, and sentence structure.
24. Visually present flow charts to convey process representations using various tools and methods (e.g., Visio, Word).
25. Verbally communicate with others to convey information effectively.
26. Use geospatial software (e.g., ArcGIS, InterGraph, ArcPad, ERDAS, Google Earth) to capture, analyze and display spatial data.
27. Apply current leadership techniques to ensure effective oversight of project team members.
28. Appropriately delegate work to project team members to ensure work projects are completed on time and within budget.

## ELIGIBLE LIST INFORMATION

A servicewide, open eligible list for the **Research Program Specialist 3 (Geographic Information Systems)** classification will be established for:

State of California (all State of California departments, statewide)

The names of successful competitors will be merged onto the eligible list in order of final score regardless of exam date. Eligibility expires **twelve (12) months** after it is established. Applicants must then retake the examination to reestablish eligibility.

Veterans' Preference will be granted for this examination. In accordance with Government Codes 18973.1 and 18973.5, whenever any veteran, or widow or widower of a veteran achieves a passing score on an open examination, he or she shall be ranked in the top rank of the resulting eligible list.

Veterans status is verified by the California Department of Human Resources (CalHR). Information on this program and the Veterans' Preference Application (Std. 1093) is available [online](#). Additional information on veteran benefits is available at the Department of Veterans Affairs.

Career Credits **will not** be added to the final score for this exam, because it does not meet the requirements to qualify for Career Credits.

## EXAMINATION INFORMATION

[Preview Training and Experience Evaluation](#)

## PREPARING FOR THE EXAMINATION

Here is a list of suggested resources to have available prior to taking the exam.

**Employment History:** Employment dates, job titles, organization names and addresses, names of supervisors or persons who can verify your job responsibilities, and phone numbers of persons listed above.

**Education:** School names and addresses, degrees earned, dates attended, courses taken (verifiable on a transcript), persons or office who can verify education, and phone numbers of persons or offices listed above.

**Training:** Class titles, certifications received, names of persons who can verify your training, and phone numbers of persons listed above.

## TAKING THE EXAMINATION

Take the examination for the [Research Program Specialist 3 \(Geographic Information Systems\)](#) classification.

**This exam will be discontinued effective August 11, 2018**

## TESTING DEPARTMENTS

State of California (all State of California departments)

## CONTACT INFORMATION

California Department of Human Resources  
CalCareer Service Center  
1810 16<sup>th</sup> Street  
Sacramento, CA 95814

Phone: (866) 844-8671

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## **EQUAL OPPORTUNITY EMPLOYER**

The State of California is an equal opportunity employer to all, regardless of age, ancestry, color, disability (mental and physical), exercising the right of family care and medical leave, gender, gender expression, gender identity, genetic information, marital status, medical condition, military or veteran status, national origin, political affiliation, race, religious creed, sex (includes pregnancy, childbirth, breastfeeding, and related medical conditions), and sexual orientation.

## **DRUG-FREE STATEMENT**

It is an objective of the State of California to achieve a drug-free State work place. Any applicant for State employment will be expected to behave in accordance with this objective, because the use of illegal drugs is inconsistent with the law of the State, the rules governing civil service, and the special trust placed in public servants.

## **GENERAL INFORMATION**

Examination and/or Employment Application (STD 678) forms are available at the California Department of Human Resources, local offices of the Employment Development Department, and through your [CalCareer Account](#).

If you meet the requirements stated on this examination bulletin, you may take this examination, which is competitive. Possession of the entrance requirements does not assure a place on the eligible list. Your performance in the examination described in this bulletin will be rated against a predetermined job-related rating, and all applicants who pass will be ranked according to their score.

The California Department of Human Resources (CalHR) reserves the right to revise the examination plan to better meet the needs of the service, if the circumstances under which this examination was planned change. Such revision will be in accordance with civil service laws and rules and all applicants will be notified.

**General Qualifications:** Applicants must possess essential personal qualifications including integrity, initiative, dependability, good judgement, the ability to work cooperatively with others, and a state of health consistent with the ability to perform the assigned duties of the class. A medical examination may be required. In open



examinations, investigation may be made of employment records and personal history and fingerprinting may be required.

Eligible Lists: Eligible lists established by competitive examination, regardless of date, must be used in the following order: 1) sub-divisional promotional, 2) departmental promotional, 3) multi-departmental promotional, 4) servicewide promotional, 5) departmental open, 6) open. When there are two lists of the same kind, the older must be used first. Eligible lists will expire in one to four years unless otherwise stated on the bulletin.

High School Equivalence: Equivalence to completion of the 12<sup>th</sup> grade may be demonstrated in any one of the following ways: 1) passing the General Education Development (GED) Test; 2) completion of 12 semester units of college-level work; 3) certification from the State Department of Education, a local school board, or high school authorities that the competitor is considered to have education equivalent to graduation from high school; or 4) for clerical and accounting classes, substitution of business college work in place of high school on a year-for-year basis.