

Research Grade Evaluation Guide Checklist

Factor 1 –Research Assignment

Factor 1 - Research Assignment	Degree A 2 Pts	Degree B 4 Pts.	Degree C 6 Pts.	Degree D 8 Pts	Degree E 10 Pts
A. Assignment	<p>Projects consist of scientific investigations of limited scope. Such investigations may stand alone as studies of specific phenomena or problems, or they may be segments of related investigations.</p> <p style="text-align: center;">-----</p> <p>Researcher typically works as a project or team member.</p>	<p>Responsible for all phases of an identifiable area of research or participates as a professionally responsible member of a team in substantive aspects of research.</p>	<p>Research assignments are broad in scope and complexity. Projects require a series of comprehensive and conceptually related phases and studies.</p> <p style="text-align: center;">-----</p> <p>Researcher typically works as a project member or as a primary investigator.</p>	<p>Research assignment is typically as team leader of a systematic attack on problems recognized as exceptionally difficult OR independent research attacking exceptionally difficult research problems with considerable breadth or depth.</p>	<p>Research assignments are of such scope and complexity as to require subdivision into separate phases, some of which are considerably broad and complex.</p> <p style="text-align: center;">-----</p> <p>Researcher typically works as a primary investigator but may also be a project member.</p>
B. Complexity	<p>Objectives are readily definable. Fairly conventional techniques are required. Projects involve applying existing theory or methods to areas previously investigated, but under different conditions, or involve adapting previous studies in light of changes in theory or improved techniques and instrumentation.</p>	<p>Either specific objectives are hard to define or slightly unusual methods are required.</p>	<p>In terms of complexity, problems are difficult to define and require sophisticated research techniques.</p>	<p>The research approach is not easily determined and modification of existing techniques is required.</p>	<p>Problems are exceptionally difficult and unyielding to investigation and require unconventional or novel approaches or complex research techniques.</p>
C. Importance Of Expected Results	<p>Projects are expected to result in contributions that:</p> <ul style="list-style-type: none"> -add to scientific and professional knowledge, or - support developing new or improved methods and techniques. 	<p>Projects will result in a series of documented additions to knowledge or comparable contributions to technology.</p>	<p>Studies of this scope result in:</p> <ul style="list-style-type: none"> - answers to important questions in the field; -account for previously unexplained phenomena; -open significant new avenues for further study; -confirm or modify a scientific theory or methodology; -lead to important changes in existing products, methods, techniques, processes or practices; or -are definitive of a specific topic area. 	<p>Studies will result in:</p> <ul style="list-style-type: none"> - a comprehensive scientific advance definitive of a broad area; or - an in-depth synthesis of a series of complex studies. 	<p>Studies of this scope result in:</p> <ul style="list-style-type: none"> - major advances or open the way for extensive related development; - progress in areas of exceptional interest to the scientific and professional community; - important changes in theories, methods, and techniques; - opening significant new avenues for further study; or, - contributions answering important questions in the field.

Factor 2 –Supervisory Controls

Factor 2 – Supervisory Controls	Degree A 2 Pts	Degree B 4 Pts.	Degree C 6 Pts.	Degree D 8 Pts	Degree E 10 Pts
A. Assignment of Work	<p>Specific problems are assigned by the supervisor with general instructions on the scope and objectives of the study.</p> <p>Researcher may suggest studies for supervisory approval.</p>	<p>Identifiable area is assigned; researcher has some freedom to select specific problems for study.</p>	<p>The researcher is assigned a broad problem area or is allowed to work with substantial freedom within an area of primary interest. The researcher has substantial freedom in identifying, defining, and selecting specific projects and is responsible for determining the most promising research strategies and problem approaches.</p>	<p>A broad area is assigned; the researcher has substantial freedom to decide the research approach and to lead the conceptual aspects of the research.</p>	<p>Within the framework of management's objectives and priorities, the researcher is responsible for formulating research plans and hypotheses;</p>
B. Research Guidance	<p>Researcher confers with the supervisor regarding problem definition, its relationship to the broader research goals of the organization, and development of a research plan. Direction and guidance are provided in the critical problem definition and planning stages. Supervisor makes decisions to stop work, change emphasis, or change research plan.</p>	<p>The supervisor and the researcher jointly define the problem, but the researcher has latitude to decide specific approach and execution.</p> <p>Decisions changing the nature of work usually originate with the researcher.</p>	<p>The supervisor approves plans calling for considerable investments of time or resources; makes final decisions concerning the direction of work and changes in or discontinuance of projects involving substantial investments; relies on the researcher's professional judgment to such an extent that the researcher's recommendations are ordinarily followed.</p>	<p>Technical guidance is limited to reviewing broad hypotheses and research attack.</p>	<p>Technical supervision is consultative in nature. The researcher works under broad administrative supervision that is limited to approving staffing, funds, and facilities and providing guidance on broad agency policies and mandates.</p>
C. Independent Responsi- bility	<p>Researcher is expected to assume responsibility for the study and pursue it to completion; solve problems ordinarily encountered in accomplishing the work with only occasional supervisory input; interpret results; and prepare entire, or sections of, reports or papers. Researcher is responsible for adequacy and completeness of each step.</p>	<p>Researcher is fully responsible for study execution, and recommends approach to novel problems encountered. Supervisor is consulted intermittently.</p>	<p>Researcher, with little technical direction, formulates hypotheses; develops and carries out the research plan; determines equipment and other resource needs; addresses novel and difficult problems requiring modification of standard methods; analyzes and interprets results; prepares comprehensive reports of findings; works with users to interpret and implement research findings or technologies; and keeps supervisor informed of plans/progress.</p>	<p>Supervisor is kept informed and only broad changes in the direction of work require clearance.</p>	<p>Responsible for carrying out the project plan; interpreting findings and assessing their organizational and professional applicability; & locating and exploring the most promising areas of research in relation to agency program needs and state of the science or discipline.</p>
D. Review of Results	<p>Work is reviewed for adequacy of methods, completeness, and appropriate interpretation of results.</p>	<p>Researcher interprets own work. Only interpretations are reviewed for technical accuracy.</p>	<p>Completed work and reports are reviewed principally to evaluate overall results, recommendations, and conclusions.</p>	<p>Interpretations are reviewed but are generally accepted as technically accurate, subject to validation or modification by the scientific community.</p>	<p>Management accepts researcher's findings as technically authoritative, as a basis for decisions, and as acceptable for review by the scientific community.</p>

Factor 3 – Guidelines and Originality

Factor 3 – Guidelines and Originality	Degree A 2 Pts	Degree B 4 Pts.	Degree C 6 Pts.	Degree D 8 Pts	Degree E 10 Pts
<p>A. Guidelines Available</p> <p>Consider:</p> <p>Literature, procedures, instructions, or precedents</p>	<p>Guidelines include:</p> <ul style="list-style-type: none"> - existing theory and methods generally applicable to the research problem, or - available material may contain some inconsistencies, may be partially defined, or may provide several possible approaches to the problem. 	<p>Some required theory and/or methods are not available in existing literature.</p>	<p>Available guides:</p> <ul style="list-style-type: none"> - consist of existing literature in the field of limited usefulness due to contradictions, critical gaps, or limited applicability; or - are largely absent because of the novel nature of the work. 	<p>Existing theory and methods are lacking for major portions of the research.</p>	<p>Guidelines are almost nonexistent in pertinent literature.</p>
<p>B. Originality Required</p>	<p>Originality is demonstrated by:</p> <ul style="list-style-type: none"> - developing a complete and adequate research design by selecting and adapting the most appropriate approach, methods, or techniques for the problem at hand; and - limited extension or modification of procedures or techniques, as required. 	<p>Problem definition and/or approach require some creativity.</p> <p>Researcher demonstrates ability to isolate critical aspects of a problem or adapt existing principles into new combinations.</p>	<p>Originality is demonstrated by:</p> <ul style="list-style-type: none"> - defining elusive or highly complex problems; - developing productive hypotheses for testing; - developing important new approaches, methods, and techniques; - interpreting and relating significant results to other research findings; - developing and applying new techniques and original methods of attack to solve important problems presenting unprecedented or novel aspects; - isolating and defining critical problem features; and - adapting, extending, and synthesizing theory, principles, and techniques into original or innovative combinations or configurations. 	<p>In addition to Degree C., originality is demonstrated by:</p> <ul style="list-style-type: none"> - a high degree of originality in interpreting results and relating them to other findings. - demonstrated ability to make significant modifications to existing theory and methodology. 	<p>Originality and creativity are demonstrated by:</p> <ul style="list-style-type: none"> - discovering complex theory or methodology; - contributing significantly to the development of new theory or methodology to supplant or add new dimensions to a previous framework; and - solving problems and delivering results that markedly influence the scientific field or society.

Factor 4 – Contributions, Impact, & Stature
Subfactor A. Demonstrated Research Ability

A. Demonstrated Research Ability	Degree A 4 Pts	Degree B 8 Pts	Degree C 12 Pts	Degree D 16 Pts	Degree E 20 Pts
OPM Standard	The researcher defines problems, performs background research, develops and executes a research plan, organizes and evaluates results, and prepares reports of findings.		<p>The research has demonstrated competence and productivity as evidenced by conducting rigorous research of marked originality, soundness, and value.</p> <p>The researcher conceives and formulates research ideas supporting or leading to productive studies by others.</p>		<p>The researcher has made outstanding and significant contributions by conducting research in either a broad field or a narrow but very specialized field of research.</p> <p>The researcher's accomplishments are of such importance and magnitude that they move the science forward.</p> <p>Research is of such impact that other researchers must take note of it to keep abreast of developments in the field.</p>
<p>USGS Guidance</p> <p>Consider: Research leadership, team participation, individual assignments</p>	Typically perform independent research or serves as full member of research team. Has satisfactorily participated in one or more research studies and demonstrated ability to clearly define problems or hypotheses, develop a research plan, execute the plan, analyze results and report on findings.	Satisfactorily demonstrated ability to independently conduct research or significantly contribute to a research team.	<p>Demonstrated ability as a mature, competent productive worker by personal performance or team participation, and/ or</p> <p>Leadership in the conception and formulation of productive research ideas that are the basis for productive studies by others.</p>	<p>Demonstrated ability as a mature, competent productive worker, leader of a productive research team, and/or leader in the conception and formulation of productive research ideas.</p> <p>Recognition is derived from a sustained research program characterized by multiple successes in the conception, execution, and dissemination of research.</p>	<p>Demonstrated outstanding attainment through personal research, team leadership or formulation of productive research ideas.</p> <p>The researcher has a distinguished record of scientific achievements with contributions of such magnitude that they move either science or technology significantly forward.</p>

**Factor 4 – Contributions, Impact, & Stature
Subfactor B. Products/Publications & Impact**

B. Products/ Publications & Impact	Degree A 4 Pts	Degree B 8 Pts	Degree C 12 Pts	Degree D 16 Pts	Degree E 20 Pts
OPM Standard	<p>Work is expected to result in or has resulted in:</p> <ul style="list-style-type: none"> - Primary authorship of papers or reports filling narrow gaps in an existing framework of knowledge, to corroborate existing theory, or to report findings of limited scopes; or - Co-authorship of a major paper or report of considerable interest to the scientific field 		<p>Work is expected to result in, or has resulted in:</p> <ul style="list-style-type: none"> - Primary authorship of publications of considerable interest and value to the field, and - Products that are significant in solving important scientific problems 		<p>Typical products:</p> <ul style="list-style-type: none"> - Primary authorship of a number of important papers including seminal or synthesis publications, some of which have had a major impact on advancing the field or are accepted as authoritative in the field. -Contributions to inventions, designs, techniques, models, or theories are regarded as major advances and open the way for further developments or solving problems of great importance to the professional community, the organization, or the public.
<p>USGS Guidance</p> <p>Consider Informal Publications: Digital & other products, open file, technical reports & manuals, circulars, program proposals, guidebooks, resource/hazard/ environmental assessments.</p> <p>Consider Formal Publications: Professional papers, books, journal articles, abstracts, conference proceedings, geologic maps.</p>	<p>Has senior authored papers or reports of narrow focus or findings of limited scope; or coauthored one or more major publications of considerable interest.</p>	<p>Has senior-authored several products/ publications in peer-reviewed literature at least one of which is of considerable importance to the field of study.</p> <p>Contributions are descriptive and interpretive.</p>	<p>Has senior-authored a number of products/ publications at least one of which includes significant interpretation and has considerable interest and value to science or technology.</p> <p>Researcher is recognized as a significant contributor to the field as evidenced by impact on a national scale.</p>	<p>Has authored a number of products/ publications of sufficient quality and exposure to influence the field markedly.</p> <p>Researcher Is recognized as a significant contributor to the field. Research contributions are acknowledged and referenced by others, and there may be evidence that work is recognized in other fields as well.</p>	<p>Has written benchmark papers that are of exceptional quality and have had an indisputable impact on the field.</p> <p>Contributions have influenced the direction or development of science in the discipline.</p>

Factor 4 – Contributions, Impact, & Stature
Subfactor C. Non-Publication Contributions & Impact

C. Non-Publication Contributions & Impact	Degree A 4 Pts	Degree B 8 Pts	Degree C 12 Pts	Degree D 16 Pts	Degree E 20 Pts
OPM Standard	Provides information and technical support on assigned research projects to collaborators and managers.		Is recognized by the scientific community as a significant contributor to the field of study;		Typically performs a variety of advisory activities based on their scientific reputation and standing such as: - Contributing significantly to professional symposia defining the state of the discipline and new or emerging fields; - Contributing to strategic research planning and program development; - Participating in major technology or information transfer activities of great importance to the scientific fields, the agency or the public; or - Participating in applying the research to important management and policy decisions.
USGS Guidance Consider: Technology development, mathematical models, database	Has participated on timely accomplishment of USGS mission objectives. Contributions have an impact on the immediate project or sphere of investigation.	Contributions have significant impact on problems of importance to the assigned research situation or sphere of investigation.	Has fulfilled a significant role in timely accomplishment of USGS mission objectives. Contributions have significant impact on problems of importance to science, technology or society	Has played a major role in timely accomplishment of USGS mission objectives. Contributions have had a major impact on problems of importance to science, technology, or society.	Has played a key leadership role in timely accomplishment of USGS mission objectives through activities such as the development and execution of major technical programs and participation in the development of interagency research and management programs. Contributions are recognized as solving problems of great importance to science, technology or society.

Factor 4 – Contributions, Impact, & Stature
Subfactor D. Stature

D. Stature	Degree A 4 Pts	Degree B 8 Pts	Degree C 12 Pts	Degree D 16 Pts	Degree E 20 Pts
OPM Standard	Researcher is recognized for contributing to the project and communicating results outside the agency.		Work is expected to result in, or has resulted in: - Selection to serve on important committees and review panels of technical groups and professional organizations; - Acknowledgement of impact by end users as evidenced by favorable reviews or citation in the work of others; - Invitations to make presentations to professional societies and others outside the organization on technical matters and management practices in the area of specialization; and - Consultation by users and other researchers who are respected in their fields of study.		Typically many of these: - Being sought as a consultant by colleagues who are themselves recognized experts in the fields; - Recognition by the scientific community as an authority in the field; - Requests from highly-respected colleagues to collaborate with the researcher; - Attracting new researchers to the field; - Invitations to address or to assume a leadership role in national professional organizations and associated committees; - Selection to lead research to solve large and complex problems.
USGS Guidance Advisory/Consultant/Scientific Committee Activities Consider: internal/ Government, international, industry, academia, education, public affairs, professional society activities.	Serves as information source for others within own area of work.	Deals directly with others but only on technical matters in own area of work. Actively participates at scientific meetings. Recognition within USGS beginning to grow as evidenced by requests to serve as a colleague reviewer for manuscripts or on USGS or other Federal agency advisory committees.	Evidence researcher has gained respect of peers as evidenced by invitations to serve of advisory or review committees, present results before professional societies, provide technical guidance and review articles for journals.	Is recognized as an expert in own field. Scientific stature at the national or international level is clearly evident from : - invitations to address meetings of national scope; - frequent requests to review books or manuscripts for journals, grant proposals; - requests to serve as a consultant to bureau program managers; and/or - requests to serve on local, State, or national committees considering problems of importance.	Is an active leader in the field as evidenced by: - numerous invitations to address professional organizations, national and international scientific meetings; - honors and awards illustrating scientific recognition, - leadership in the conception and organization of scientific meetings/or special symposia, and/or - invitations to review articles for a broad variety of publications or proposals for diversity of funding agencies. Serves as an adviser to other Federal agencies or other research organizations.

Note: Quality, relevance and impact of contributions on USGS mission, science, technology, public and organizational policy are essential considerations in the evaluation of all elements.

Conversion Scale	Grade Point Values
GS-11	8-14
GS-12	16-24
GS-13	26-34
GS-14	36-44
GS-15	46-50