

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK
(Last Revision: 22 December 2016)

TABLE OF CONTENTS

RESEARCH ENVIRONMENT

- Research Environment..... Page 2
- TAMU Vision 2020..... Page 2
- TAMU Grand Challenges..... Page 5
- College Vision & Mission..... Page 6
- College Strategic Plan (Research)..... Page 7

RESEARCH ENTERPRISE

- Centers and Institutes..... Page 8
 - Overview
 - Reviews
- College Signature Research Programs..... Page 10
- College International Research Programs..... Page 10
- Undergraduate Research..... Page 10
- Graduate Research..... Page 11
- Council of Principle Investigators..... Page 12
- University Research Council..... Page 12

RESEARCH ADMINISTRATION

- Proposal Development Resources..... Page 13
- MAESTRO..... Page 13
- SRS..... Page 13
- Prefunding..... Page 14
- Principal Investigators..... Page 14
- Data Management Plan..... Page 14
- Evaluation and Assessment..... Page 15
- Indirect Cost (IDC)..... Page 17
- IDC Waiver..... Page 18
- Grant Award..... Page 18
- Cost Sharing and Matching Funds..... Page 20
- Limited Submissions..... Page 20
 - CAPES
 - CONACYT
- E-Proposals..... Page 21
- Research Development Funds..... Page 21
- Patents..... Page 21
- Consulting..... Page 22

RESEARCH COMPLIANCE

- IRB..... Page 22
- IBC..... Page 24
- Export Control..... Page 26
- Laboratory Safety..... Page 27
- Conflict of Interest..... Page 28

INFORMATION RESOURCES ROLES/RESPONSIBILITIES OVERVIEW (IT)... Page 29

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

The Research Environment presented below provide the university and college context for developing the research enterprise be it at an individual or unit level.

RESEARCH ENVIRONMENT

TAMU - Vision 2020: Creating a Culture of Excellence <http://vision2020.tamu.edu/>

Vision 2020: Creating a Culture of Excellence articulates Texas A&M University's bold recognition of necessary institutional evolution required to achieve its mission as a land, sea, and space grant institution of global preeminence. Adopted in 1999, with an explicit vision for acceptance as a consensus leader among peer public institutions, more than 250 stakeholders worked to identify benchmarks, which if achieved, would enhance the value of Texas A&M to The Texas A&M University System, the State of Texas, and the nation.

Vision 2020 identifies [twelve specific areas of focus](#), which are underscored as well-crafted imperatives that define accepted precepts and goals that the university will target over the course of two decades. For 10 years, *Vision 2020* has guided strategic planning, budgeting, and administrative priorities, making tremendous progress and garnering national accolades for our unique combination of core values and academic excellence.

The precepts, focused goals, and measures can be summarized in twelve overarching ideas. We call these **the twelve imperatives**.

THE TWELVE IMPERATIVES

1. Elevate Our Faculty and Their Teaching, Research, and Scholarship

The world today is knowledge-based and constantly changing. In such a world, the quality research university is "a creator, organizer, preserver, transmitter, and applier of knowledge." The foundation of these functions is an excellent faculty in adequate numbers. We need to increase substantially the size of our faculty (perhaps by half), and we must attract and retain many more top scholars, teachers, and researchers. We will have to review and strengthen hiring and tenure policies, enhance compensation, focus our scholarship, and transform our administrative culture. We cannot achieve our goal without a nationally recognized faculty with a passion for teaching and an academic environment that values and rewards innovation, great ideas, and the search for the truth.

2. Strengthen Our Graduate Programs

We must have a shift in our thinking about the role of graduate education to attain the level of excellence we desire. A substantially expanded graduate studies effort is critical to our academic aspirations and to our effectiveness as a great research university. Outstanding professors attract superior graduate students and, in many instances, the money to help support their research. But these professors by themselves will not be enough. We must create a dynamic, exciting, discovery-driven intellectual environment that will draw superior graduate students, comparable to those in the nation's best graduate programs.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK

(Last Revision: 22 December 2016)

3. Enhance the Undergraduate Academic Experience

The core of Texas A&M University must be a residential, learner-centered community that attracts excellent students and provides quality learning and mentoring experiences. We must better prepare learners for lives of discovery, innovation, leadership, and citizenship by better inculcation of writing, thinking, and self-expression skills. Texas A&M University is proud of its history of developing student leaders. Our co-curricular programs are already an area of true distinctiveness, but we must continue to strengthen their substance and reputation and extend their benefits to a greater percentage of the student body. While our retention rate is the highest in Texas, it is low relative to the best national institutions; we must make an institutional commitment to graduate those we enroll. We must emphasize education more than training and significantly improve our student-faculty ratio. We must provide more opportunity for intellectual exchange between distinguished faculty and undergraduates. Our recruiting should be more proactive and produce a more broadly representative student body. We need to expand our honors, study/live-abroad, interdisciplinary studies, and course-assistance programs.

4. Build the Letters, Arts, and Sciences Core

Texas A&M University has historically placed less emphasis on the letters and arts. While many of our basic science disciplines are nationally acclaimed, the best public universities have stronger and deeper liberal arts programs and a fuller range of such programs with a significantly higher institutional commitment. Such strengthening is necessary for the true, enduring education of our graduates and the enrichment of their lives. It is abundantly clear that we will never be seen as a premier institution nationally without a far stronger letters, arts, and sciences program.

5. Build on the Tradition of Professional Education

Undergraduate education in all areas, including professional education, has been our traditional strength at Texas A&M University. At the heart of Vision 2020 is a belief that we will not only sustain but also continually strengthen our professional programs at both the undergraduate and the graduate levels. We expect that these programs will be the first (as some already are) to represent Texas A&M University solidly and firmly in the top ten nationally. Our professional programs must also recognize the necessity to prepare their graduates more broadly for entry into a complex, changing, and unpredictable world.

6. Diversify and Globalize the A&M Community

The time has passed when the isolation of the Texas A&M University campus served a compelling utilitarian function. Information, communication, and travel technology have produced a highly connected global society. The ability to survive, much less succeed, is increasingly linked to the development of a more pluralistic, diverse, and globally aware populace. It is essential that the faculty, students, and larger campus community embrace this more cosmopolitan environment. The university's traditional core values will give us guidance and distinctiveness, while preparing us to interact with all people of the globe. Texas A&M University must attract and nurture a more ethnically, culturally, and geographically diverse faculty, staff, and student body.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK

(Last Revision: 22 December 2016)

7. Increase Access to Knowledge Resources

Despite recent progress, the intellectual assets represented by Texas A&M University library holdings are underdeveloped and must be increased. Coincidentally, we must recognize that the technology related to the storage, access, and distribution of knowledge resources has changed as much in the last decade as in the 550 years since the invention of movable type. Texas A&M University must invest rapidly, but wisely, to gain parity with its academic peers. It must lead, not just grow, in forcefully developing new methods and measures of success in this rapidly changing arena. The wedding of communications and computer technology will, no doubt, yield the most formidable change in academe by 2020. Texas A&M University must lead the adaptation.

8. Enrich Our Campus

The physical environment of our campus should be conducive to scholarly work and study. Texas A&M University has an efficient and well-maintained campus. However, during our rapid growth over the past four decades, the physical unity of the campus has been diminished by the presence of Wellborn Road and the railroad tracks. Innovative planning and bold leadership are needed to redress this division for reasons of safety and convenience as well as aesthetics. West Campus has not maintained the human scale that exists on the Main Campus. Through judicious planning we need to attain the same pedestrian-friendly scale and green space that gives the Main Campus its character. The use of large areas for surface parking needs to be reconsidered so that the unity of the campus is maintained as new building occurs to accommodate growth. As more of the university's current land holdings are consumed by non-agricultural uses, acquisition of land on or near the Riverside Campus for agricultural development should be a high priority.

9. Build Community and Metropolitan Connections

The way that we relate to the local community, Houston, and other metropolitan areas of the state will have a powerful impact on Texas A&M University and the communities supporting and supported by the university. In addition, it is critical that the community in which we live provide opportunities for families to work and grow. Spouses need high-quality employment opportunities. Faculty and researchers need private-sector sponsorships and commercialization support. As we attract a wider range of people to Texas A&M University, the enrichment provided through our connection to a large metropolitan area becomes increasingly important. Correctly choreographed, such a connection gives us the best of both worlds.

10. Demand Enlightened Governance and Leadership

Great universities have a clearly articulated vision, a stimulating intellectual environment populated by great faculty and students, and resources adequate to support quality offerings. One other characteristic often contributes to greatness: enlightened leadership. Clear, cooperative relationships between the university and the System must be the norm. To achieve our aspirations, strong, enlightened, stable, and forward-thinking leadership focused on academic quality is essential. We have made progress, but we must guard it zealously. Regents must continue to take the policy high ground. The System administration must acknowledge and nurture Texas A&M University's role as a comprehensive research university with national peers. The university administration must be steadfast in its demand for quality in every decision. And finally, the university administration must make decisions through a process characterized by openness and appropriate faculty and staff participation. Our responsibility to

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

the System as its flagship must be evidenced in all decision-making. Academic progress is fragile. Enlightened, shared governance and leadership are elemental to its achievement.

11. Attain Resource Parity with the Best Public Universities

The combination of rapid population growth, demand for government services and difficult economic times have placed a strain on the Texas treasury in recent years. A good and widely dispersed university system has provided access to a growing college-aged population. Access alone is no longer enough. Texas must have a few universities that offer opportunities equal to the best public universities, while taking complementary steps to maintain access. Competitive peer states have long recognized the economic necessity of comprehensive research universities in meeting the knowledge demands of an information society. States with the best universities are currently investing twice as much funding per student as at Texas A&M University.

Texas A&M University and the University of Texas are ideally positioned to achieve recognition as top national institutions because of the state's historical, constitutional financial commitment to them. Texas may also need additional institutions of this caliber. The institutions designated to fill this role must be acknowledged and supported in a way that is consistent with national competition. They must be provided the flexibility and exercise the wisdom and courage to price their offerings more in line with their value, while taking complementary steps to maintain access. Finally, they must use their historical strength to generate more private capital. Texas A&M University must attain resource parity with the best public institutions to better serve Texas.

12. Meet Our Commitment to Texas

Texas A&M University is a creation of the state and in its origin was designed to prepare educated problem-solvers to lead the state's development. This fundamental mission, born out of the land grant heritage of service, remains today. Texas A&M University's aspiration to be among the best public universities in the country resonates with this historical mandate. The diverse population of Texas should have access to the best public education in America without having to leave the state. Texas A&M University must also reach out even more to help solve the most difficult societal problems, including those related to public education, crime, and the environment, and must honor its heritage of enhancing the economic development of all regions of the state. Texas A&M University, if it aspires to national prominence, must first stay committed to Texas.

TAMU Grand Challenges

<http://grandchallenges.tamu.edu/home/> and <http://grandchallenges.tamu.edu/2015/01/21/texas-am-agrilife-conference-grand-challenges-update-review/>

The TAMU Grand Challenges are a faculty-led, faculty-driven initiative. Each of the challenges are interconnected and universal. No solitary discipline can solve them all, which is why a series of events were created to spark meaningful conversations across multiple disciplines. Through the help of the participants, the events help to define the issues.

- Designing & Protecting the Environment (Environment) [White Paper \(MS Word\)](#)
- Providing Sustainable & Efficient Energy (Energy)

COLLEGE OF GEOSCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- Improving Economic Development (Economic Development) [White Paper \(MS Word\)](#)
- Enhancing Human, Animal & Plant Health (Human, Animal & Plant Health) [White Paper \(MS Word\)](#)
- Educating 21st Century Leaders (Educating Leaders) [White Paper \(MS Word\)](#)
- Strengthening Democracy (Democracy)

College Vision

To lead in establishing the geosciences as the defining scientific discipline of the 21st century. The sustainable human society of the future depends more on innovation and application of discovery in the geosciences than on any other discipline. Our field is essential to solving society's grand challenges – global climate change, air and water quality, and adequate energy and food supplies. By lead, we mean:

- Produce graduates of diverse backgrounds who rise to be leaders in private industry, government, and education.
- Produce interdisciplinary, innovative, technologically advanced, research that is widely translated and communicated for the benefit of a global society.
- Prepare all students for thoughtful, life-long participation in public issues related to science, technology, and society.

College Mission

To advance new understandings of Earth's Systems and apply them to the needs of society. To prepare the next generation of geoscientists to conduct research, to find and develop natural resources, and to measure and respond to environmental change.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK
(Last Revision: 22 December 2016)

COLLEGE STRATEGIC PLAN (RESEARCH ELEMENT)

<u>RESEARCH GOALS</u>	<u>ACTION PLAN</u>
<p>1. Advance research in basic and applied geosciences.</p> <p>2. Elevate the impact of our research especially that which directly benefits Society and enhances economic well-being through improved outreach and engagement.</p> <p>3. Establish major multidisciplinary research initiatives that distinguish the college and the university.</p>	<ul style="list-style-type: none"> • Identify Seed funding for high-risk, high impact research. • Seek endowments for outstanding faculty and research centers. • Ensure faculty advancement in skills and knowledge through career development. • Develop and implement the number of strategies to increase the number of articles published in highly-cited journals such as Nature and Science. • Develop and implement connectivity. • Develop and implement strategies to increase the number of invited presentations at national and international meetings. • Develop and implement strategies to increase the number of faculty serving on national and international advisory committees. • Continue to advance the Center for Geospatial Sciences, Applications and Technology to integrate geo-informatics efforts across the university. • Successfully implement the SmartGulf initiative to advance our understanding of the natural processes associated with the Gulf of Mexico. • Continue development of the Texas Water Observatory to establish a network of real-time sensors in the State of Texas that integrate ground, surface and atmospheric water models. • Develop a research partnership with industry focused on understanding unconventional hydrocarbon reservoirs. • Integrate IODP Staff Scientists in research and teaching collaborations with college faculty.

COLLEGE OF GEOSCIENCES RESEARCH HANDBOOK
(Last Revision: 22 December 2016)

<p>4. Strengthen the college’s research strategies to increase the number of faculty nominated for and receiving highly prestigious awards for their research.</p> <p>5. Review the international footprint of the college and identify opportunities for strategic collaborations with institutions that match or complement the college’s strengths in research and education.</p> <p>6. Modernize and advance the College and University’s research infrastructure.</p>	<ul style="list-style-type: none"> • Grow Ocean Sciences research by strengthening collaborations between College Station and TAMUG. • Establish and grow strategic partnerships with other universities, private industry, and governments. • Support development of new PI-to-PI international collaborations. • Support development of unit-specific international partnerships. • Develop new MOUs with institutions that match well with a broad spectrum of research and education areas in the college. • Renovate O&M/Halbouty Buildings allowing expansion of cutting edge research. • Plan for a new building to house the entire college. • Build an IT infrastructure to support the research-computing environment of the future.
--	--

II. RESEARCH ENTERPRISE

College Research Enterprise

The College of Geosciences is home to nine research centers and consortiums that focus on interdisciplinary and collaborative research aimed at addressing global issues that affect our everyday lives. Researchers and collaborators from Texas A&M include the College of Agriculture, College of Architecture, College of Engineering, Texas A&M Galveston, and Texas A&M Corpus Christi.

College of Geosciences Centers & Institutes

The College of Geosciences consists of nine Board of Regent or University President approved facilities that provide a conduit by which a critical mass of intellectual capability, disciplinary expertise, financial resources and physical assets can be brought together to achieve the educational and research mission of the College:

- **Berg-Hughes Center for Petroleum and Sedimentary Systems** (Carlos Dengo)
<http://berg-hughes.tamu.edu/> *The Berg-Hughes Center for Petroleum and Sedimentary Systems integrates geosciences, engineering and other disciplines to collaborate with industry and others to advance research and education in petroleum students.*

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK
(Last Revision: 22 December 2016)

- **Center for Atmospheric Chemistry and the Environment** (Don Collins) <http://cace.tamu.edu/> *The overall objective of the Center for Atmospheric Chemistry and the Environment (CACE) is to integrate research regarding the formation, transport, impact, and mitigation of air pollution with studies of the mechanisms by which the scientific results can best inform sound environmental policy.*
- **Center for Geospatial Sciences, Applications and Technology “GeoSAT”** (Michael Bishop) <http://geosat.tamu.edu/> *The objective of GeoSAT is to engage faculty and students in multidisciplinary collaborations that advance geospatial knowledge and provide practical solutions toward the development and use of geospatial technology innovations in partnership with government and industry to foster economic development. The Center strives to foster excellence in geospatial research, education, and outreach activities by establishing campus-wide cyber and social infrastructures that support the University’s geospatial enterprise to expand, facilitate, dialog and collaborate among faculty and students, and to foster innovative development and use of geospatial technologies. It endeavors to help Texas A&M partner with government and industry to create innovative geospatial technology and information solutions to foster economic development and to elevate Texas A&M University as a focal point for geospatial technology solutions within the state and nation.*
- **Center For Tectonophysics** (Fred Chester) <http://tectono.tamu.edu/> *The Center for Tectonophysics is an interdisciplinary research group initiated in 1967 for dual purposes: to undertake basic and applied research of both natural and man-induced rock deformation processes and the broad range of geologic structures formed, and to provide research support, training, and mentoring of graduate students and post-doctoral fellows pursuing advanced studies in the area of Tectonophysics.*
- **Geochemical and Environmental Research Group “GERG”** (Tony Knap) <http://gerg.tamu.edu/> *GERG is organized as three interrelated groups that provide field acquisition, analyses, and interpretation of data across several interlocking themes in environmental sciences, ocean sciences, and resource geosciences. Staff and partners include geologists, inorganic and organic geochemists, analytical and contaminant chemists, biological, chemical, geological, and physical oceanographers, biologists, ecologists, and toxicologists.*
- **International Ocean Discovery Program** (Brad Clement) <http://iodp.tamu.edu/> *The International Ocean Discovery Program_(IODP) is an international research collaboration that coordinates seagoing expeditions to study the history of the Earth recorded in sediments and rocks beneath the ocean floor. The JOIDES Resolution Science Operator (JRSO) operates the scientific drillship JOIDES Resolution on behalf of the National Science Foundation.*
- **Office of the State Climatologist** (John Nielsen Gammon) <http://climatexas.tamu.edu/> *The Office of the State Climatologist strives to provide the state of Texas with accurate climate information and critical expertise in the field of climatology. In addition, this office hopes to play a significant role in the education and understanding of the climate, its elements, and its impact on Texas.*

COLLEGE OF GEOSCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- **Texas Center for Climate Studies** (Ramalingam Saravanan) <http://texasclimate.tamu.edu/>
The mission of the Texas Center for Climate Studies (TCCS) is to initiate, encourage, and support climate-related programs in research, education, service, and outreach, particularly as they relate to improving the quality of life and economic health of residents of the State of Texas. The Center advances understanding of why and how the climate is changing, and what those changes will mean for the State of Texas. It promotes translational research that takes what we learn from climate models and puts it into the hands of those who need it. Finally, TCCS takes an active role in communicating information about climate change and its potential impacts to the public.
- **Texas Sea Grant** (Pamela Plotkins) <http://texasseagrant.org/>
Texas Sea Grant is part of NOAA's National Sea Grant College Program, a network of 33 university-based programs in coastal and Great Lakes states, Puerto Rico and Guam. Texas Sea Grant's competitive research grant program draws on the expertise of the state's top scientists. At the same time, its coastal extension agents and specialists working in the field translate and communicate research results to stakeholders in ways that meet the real-world needs of Texans.

Reviews: <https://vpr.tamu.edu/compliance/guidingprinciplesresearchcompliance>

College Signature Research Initiatives

The Geosciences are vigorous and rapidly evolving fields of science, and direct student participation in discovery drives deep learning. We encourage and support presentation of student-led research from local to global venues and have organized programs to engage students with research opportunities.

{This space intentionally left blank pending identification and recognition of the College's signature research initiatives to be determined in the Spring of 2017}

College International Initiatives

The College of Geosciences values the widespread participation of all of our students in our internationally-recognized research programs.

- Costa Rica – Solti's Center: TAMU Center, Field Station, Mapping, Landforms, Culture
- HAIFA University, Israel: Texas A&M – Israel Mediterranean Observatory
- CINVESTA/CONACYT – TAMU Partnership: Coastal and Blue Water Observing Network
- Gdansk University of Technology / Ministry of Education – Geographic Information research collaboration
- Ocean University of China –Ocean-atmospheric research collaboration

Undergraduate Research <http://hur.tamu.edu/Undergraduate-Research>

The Texas A&M Quality Enhancement Plan (QEP; <http://provost.tamu.edu/initiatives/quality-enhancement-plan/qep>) is a key component of our reaffirmation process with the Southern Association of Colleges and Schools (SACS). Undergraduate research is integral to the College of Geosciences QEP, Aggies Commit to Communicate (C2C), which aims to advance excellence in our College by providing students with increased and effortful opportunities to think, write, and speak about the subject

COLLEGE OF GEOSCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

matter and skills they are acquiring. Research experiences build individual curiosity and group collaboration skills, offer students opportunities to reflect on what they have learned and wish to continue to learn.

Specific Student Learning Outcomes associated with undergraduate research include (1) demonstrate effective writing and communication skills; (2) exhibit the skills necessary to acquire, organize, reorganize and interpret new knowledge; (3) show proficiency in current technologies and the ability to adapt to emerging technologies; (4) demonstrate intellectual curiosity; (5) work with others to support a shared purpose or goal; (6) synthesize knowledge across courses and other experiences.

Undergraduate research is well represented in terms of number of students participating. 815 students participated in undergraduate research between September 2012 and December 2015 as measured by enrollment in 291 and 491 hours, supervised by advanced graduate students, post-doctoral scholars, research scientists, or faculty. We have observed an upward trend: 128 undergraduates were enrolled in research hours in 2012, while 287 were enrolled in research hours in 2015. Undergraduates have worked in laboratories, where they perform tasks with graduate students and post-doctoral researchers; or they may work individually with faculty in proof-of-concept work, data collection, sample preparation, or analysis.

All students conducting research in the field or in the lab must be registered in 291 or 491 hours. A zero-credit-hour option allows students to be registered for research without incurring additional charges for tuition or fees. Individual departments have specific protocols for creating 291 or 491 sections for instructors; typically a brief outline of roles and responsibilities is required. We encourage faculty to integrate research with undergraduate students through the development of research teams that may include post-doctoral scholars and advanced graduate students. The College supports undergraduate travel to present research at regional and national conferences.

Undergraduate research in 291 and 491 hours also helps students achieve points for the Medallion Scholars program, which we unveiled in spring 2015. Each time a specific milestone (along their Pathway) is met in high impact learning experiences, students will earn points towards their medallion.

Graduate Research http://vpr.tamu.edu/research?_ga=1.189583727.59171874.1464203854

Graduate research is an integral part of the research enterprise in the College of Geosciences. With a population of roughly 370 graduate students, and a degree production rate averaging 50 MS and 25 PhD degrees per year in thesis-based programs, it is clear that the role of graduate students in research cannot be underestimated. The College houses thesis-based graduate degree programs in all of our departments as well as two interdisciplinary degree programs.

The learning objectives for these graduate research experiences are the same as outlined above, and research hours are tracked and awarded as well. For many students, particularly senior doctoral students, research hours may make up the entirety of their semester enrollment.

All students conducting research in the field or in the lab should be registered in 691 hours for research credit. This is a variable unit course available between 1 and 9 units that does count toward a student's degree plan. Individual departments have specific protocols for creating 691 sections for instructors; often a brief outline of roles and responsibilities is required. 691 hours need not be supervised by a graduate student's major professor, but should be supervised by the faculty member most directly

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

overseeing the research effort. We encourage faculty to work to develop research teams that may include post-doctoral scholars and advanced undergraduate students.

The College encourages external support for graduate students and fees as they pursue research. External agency support and more rarely department or college funds are set up for students in a GAR (Graduate Assistant Researcher) role. This does not necessarily include tuition, fees or insurance support, but it certainly may if funds are available. The exact stipend amounts and coverage terms are variable and governed by departmental guidelines and funding constraints. The College also strongly encourages and partially supports graduate travel to present research at regional and national conferences.

Typically if graduate support is available through external funds, it is expected that these funds be used first to cover conference presentations and research travel. However, if those funds are limited or unavailable, most departments and the college have limited funds that can help defray costs for these activities. Departmental Graduate Directors are typically the best point of contact for information on resource availability for research travel support, and professional development or other high impact scholarly activities related to graduate student education.

Council of Principal Investigators <http://cpi.tamu.edu/>

Members of the Council are elected representatives of the Principal Investigators from various units of the Texas A&M University research community. As such, it is the responsibility of Council Members to maintain an effective dialogue with their constituents. Various guests may be invited to a meeting(s), at the discretion of the CPI Chair, when a meeting topic or issue is discussed that intersects with the purview of an administrative office. The list of invited guests changes every year at the discretion of the CPI Chair. Individual faculty are encouraged to contact the college CPI representatives to share concerns or issues so the college representative can present these issues to the CPI for discussion.

College Representatives: Alex Orsi (2016-2019), Pamela Plotkins (2016-2019), Brendan Roark (2105-2018)

University Research Council

The University Research Council (URC) provides advice and assistance to the Vice President for Research on the development of research, research planning, and research policy. The URC reports to the Vice President for Research.

The URC is an advisory body that may consider any matter of policy and procedures regarding University research. The Council may make recommendations on the manner by which research is initiated and conducted in support of the primary teaching function of the University.

Members include the research deans from each college and Division of Research senior administrators.

College Representative: Jack Baldauf

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

III. RESEARCH ADMINISTRATION

The Responsible Stewardship of Research Data <http://rules-saps.tamu.edu/PDFs/15.99.03.M1.03.pdf>

Proposal Development Resources <https://vpr.tamu.edu/researchdevelopment>

The Office of the Vice President for Research has implemented reoccurring Professional Development Programs to enhance grant writing skills, with a particular focus on junior faculty researchers. The Division of Research delivers strategic support to further the University's research mission through: facilitating collaborations to grow federal funding; strengthening the research infrastructure; promoting the value of research; encouraging commercialization partnerships; and ensuring research compliance. The division is committed to a truly comprehensive university, where students, researchers, and inventors bring scholarship and innovation to bear for the benefit of the community, the state, and the nation.

Research Development Services (RDS) assists the Texas A&M research community through professional development workshops and seminars, research proposal development, and other research development support services.

Browse the [Professional Development Program Calendar](#) or check the Upcoming Events list in the bottom right-hand panel to see information about upcoming workshops and seminars, including links to register.

Additional Sources:

- Proposal Preparation and Submission: Chance Spencer; chancespencer@tamu.edu
- Contract Negotiations: Jim Roth; jroth@tamu.edu
- Project Administration - Atmospheric Science, Geography, Geology & Geophysics and GERG: Kyndra Reed; kreed@tamu.edu
- Project Administration – Oceanography: Denise Mackan dmackan@tamu.edu
- Project Administration – Sea Grant: Amanda Johnson amandajohnson@tamu.edu
- Associate Dean for Research: Jack Baldauf; jbaldauf@tamu.edu
- Maestro <https://srs.tamu.edu/write-a-grant/>

Maestro is an online tool that supports researchers and research administration across the Texas A&M System where researchers can review their proposals, contract negotiation status, accounts once awarded. You can also add research keywords to your personal profile, search for people with a specific area of interest, search for funding opportunities, or begin a new proposal.

- **Maestro Training:** Amanda Reitmayer
- **Maestro User Access Request :** Sharon Thigpin

- Sponsored Research Services (SRS) <https://srs.tamu.edu/>
Sponsored Research Services (SRS) was created to assist and facilitate the PI in submitting research proposals to federal, state, private and non-profit sponsors that comply with all applicable regulations. SRS can minimize the administrative burden of the research process. SRS exhibits

COLLEGE OF GEOSCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

leadership in research administration by collaborating to develop consistent and efficient procedures. SRS also engages in training and professional development.

SRS services include:

- Reading the solicitation
- Developing the project budget for the proposal
- Serves as a liaison throughout the research community by improving communication
- Coordinates subcontract efforts
- Maintains high ethical standards by ensuring compliance at all levels
- Coordinates approvals for waived IDC and cost sharing
- Maximizes the benefits of technology by loading all administrative and budget information into the proposals and initiating and routing the proposal in Maestro
- Reviews final proposals prior to submission
- Submits the proposal

Prefunding Requests <https://vpr.tamu.edu/>

Large, multidisciplinary grant proposals to federal agencies and requests for funding by PIs seeking to develop interdisciplinary research teams. Teams are expected to submit a targeted proposal, or series of proposals, leading to the larger effort. May include funding for team development, strategies, and efforts that will assist the team in gaining information to build a competitive proposal. In addition, the college retains partial support for proposal development services.

Contact: Jack Baldauf - Geosciences – jbaldauf@tamu.edu

Principal Investigator

A **Principal Investigator (PI)** is the holder of an independent grant administered by a university and the lead researcher for the grant project, usually in the sciences. The phrase is also often used as a synonym for "head of the laboratory" or "research group leader." While the expression is common in the sciences, it is used widely for the person or persons who make final decisions and supervise funding and expenditures on a given research project.

In the context of Federal funding from agencies such as the [NIH](#) or the [NSF](#), the PI is the person who takes direct responsibility for completion of a funded project, directing the research and reporting directly to the funding agency. <http://rules-saps.tamu.edu/PDFs/15.01.01.M5.01.pdf>

Data Management Plan

The following government agencies have articulated data management or data sharing policies:

- National Science Foundation
- National Institutes of Health
- Centers for Disease Control and Prevention
- NASA (Earth Science)
- National Endowment for the Humanities Office of Digital Humanities

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

NSF Data Sharing Policy <http://www.nsf.gov/bfa/dias/policy/dmp.jsp> and <https://vpr.tamu.edu/>

PIs are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. “See Award & Administration Guide (AAG) Chapter VI.D.4”

NSF Data Management Plan Requirements

Proposals must include a supplementary document of no more than two pages labeled “Data Management Plan”. This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results. “See Grant Proposal Guide (GPG) Chapter II.C.2.j”.

Data Management: Definition, Support, Responsibilities:
<https://www.nsf.gov/bfa/dias/policy/dmpfaqs.jsp>

Data Management Planning: Agency requirements, Checklist
<http://www.nsf.gov/eng/general/dmp.jsp>

Data Management Tool: Agencies support, Tool, Training
<https://dmptool.org/>

Data Repositories: Resources for data storage, TAMU libraries
<http://guides.library.tamu.edu/DataManagement>

TAMU Libraries: The University's Digital Libraries can assist PIs with data storage.
<http://digital.library.tamu.edu/>

Evaluation and Assessment

http://www.nsf.gov/ehr/Evaluation_Resources.jsp and <https://vpr.tamu.edu/>

Evaluation is “systematic investigation of the worth or merit of an object.” Evaluation is not separate from, or added to, a project, but rather is part of it from the beginning. Planning, evaluation, and implementation are all parts of a whole.

Evaluation provides information to help improve the project. Information on whether goals are being met and on how different aspects of a project are working are essential to a continuous improvement process. In addition, and equally important, evaluation frequently provides new insights or new information that was not anticipated. It allows projects to better tell their story and prove their worth. It also gives managers the data they need to report “up the line,” to inform senior decision makers about the outcomes of their investments.

<http://www.nsf.gov/pubs/2002/nsf02057/start.htm>

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

Online resources to assist investigators in evaluation of their research projects:

- The 2002 User Friendly Handbook for Project Evaluation (NSF)
<http://www.nsf.gov/pubs/2002/nsf02057/nsf02057.pdf>
- User-Friendly Handbook for Mixed Method Evaluations (NSF)
<http://www.nsf.gov/pubs/1997/nsf97153/start.htm>
- Evaluation: Measuring What Works (National Institute of General Medical Sciences)
<https://loop.nigms.nih.gov/2010/10/new-online-evaluation-resource/>
- Program Evaluation (Program Performance and Evaluation Office, Centers for Disease Control and Prevention) <http://www.cdc.gov/program/index.htm>
- Evaluation Resources (Alliances for Graduate Education and the Professoriate)
<http://www.nsf.gov/pubs/2016/nsf16552/nsf16552.htm>
- STEM Assessments (Association of American Colleges and Universities)
<https://www.aacu.org/node/5623>
- Assessment Resources (PULSE Community – the Partnership for Undergraduate Life Sciences Education) <http://www.pulsecommunity.org/>
- Writing Guides <http://www.aresearchguide.com/>
- Guides to Writing Successful Proposals <http://vpr.tamu.edu/researchdevelopment/proposal-development-resources/writingguides>
- American Scientist, The Science of Scientific Writing
<http://www.americanscientist.org/issues/feature/the-science-of-scientific-writing/>
- Columbia University, Writing a Grant Proposal
http://www.cumc.columbia.edu/dept/gsas/ac_programs/writing.htm
- Foundation Center, Short Course on Grant Writing
<http://foundationcenter.org/learn/shortcourse/prop1.html>
- Geological Society of America, Graduate Student Grant Writing
<http://www.geosociety.org/grants/gradgrants.htm>
- Jacob Kraicer, The Art of Grantsmanship
<http://www.hfsp.org/funding/art-grantsmanship>
- James Madison University Proposal Development Guides
<http://www.jmu.edu/sponsoredprograms/proposal-development-training/index.shtml>

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- National Institutes of Health, Off. of Behavioral and Social Sciences Research, Insider Tips to Boost your Chance of Funding Success <https://obssr.od.nih.gov/insider-tips-to-boost-your-chance-of-funding-success/>
- National Organization for Research Development Professionals, Writing a Grant 101 http://www.nordp.org/index.php?option=com_content&view=article&id=45&Itemid=107
- Science Careers Journal, Getting Your Postdoc Grant--It Takes More Than Just Writing! <http://www.sciencemag.org/careers/1999/09/getting-your-postdoc-grant-it-takes-more-just-writing>
- Science Careers Journal, The Grant Doctor: Advice for Grant Seekers (a series of articles) <http://www.sciencemag.org/author/grant-doctor>
- Texas A&M Engineering Experiment Station, Proposal Tips, from Before You Write to Writing the Proposal <http://teesresearch.tamu.edu/>
- University of Michigan, Proposal Writer's Guide <http://orsp.umich.edu/proposal-writers-guide-overview>

Facilities and Administrative Costs (F&A) otherwise known as Indirect Costs (IDC):

<http://www.tamus.edu/business/budgets-and-accounting/accounting/facilities-administrative-costs/facilities-administrative-cost-brochure/>

Two IDC Rate Types (but not limited to):

- On-Campus Rates – 46.5%
- Off Campus Rates – 26% (>60 percent of the effort will be completed off campus)
- **Indirect Costs** (AKA F&A or Facilities & Administrative Costs): F&A Costs are those costs that are incurred for common or joint objectives and therefore cannot be identified readily and specifically with a particular sponsored project, an instructional activity, or any other institutional activity:
 - Operation and Maintenance (13.2%)
 - Building Depreciation (3.2%)
 - Equipment Depreciation (2.5%)
 - Library (1%)
 - Interest (0.6%)
 - Administration (26%) included with on-campus rate of 46.5%; excluded from off-campus rate
- **Direct Costs** (may include, but not limited to):
 - Travel
 - Materials and Supply
 - Publications
 - Analytical Services
 - Equipment

COLLEGE OF GEOSCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- **Waiving IDC (or reduced IDC):** https://vpr.tamu.edu/researchadmin/resources/2016-listserv-emails/idc-waiver-form-1_19_16/view?searchterm=IDC

Waved or reduced IDC may be considered in response to an agency requirement which has a policy that indicates IDC will not be funded, or that IDC funding is at a specific (reduced) rate. Waved or reduced IDC also may be considered at an off campus vs on campus rate depending on where the significant portion of the work will be completed. Note that requests to waive IDC or to reduce the IDC rate require approval prior to submission of any proposal. A strong justification is required and should address not only the reason for the waived or reduce rate, but the benefits of the proposed effort to the University and the State of Texas. Decision(s) are:

- Case by Case assessment
- Funding entity limits IDC rate
- Off campus work
- Requires College Research Dean and VPR approval
- Impact, benefit to PI, Department, College, University
- Waiving IDC does not improve proposal's chance of award
- VPR/SRS discourages waiving IDC
- Federal grants prohibit cost share
- Approval required prior to proposal submission; Department Head; Dean's Office (Associate Dean for Research)

- **IDC Distribution**

TAMU POLICY: <http://cpi.tamu.edu/meetings/LaineIDCFINAL17.pdf>

The approved TAMU IDC policy provides the following return distribution:

- System component / Unit 60 percent
- Research Development Fund 15 percent
- Unit (Department/Other) 15 percent
- PI 10 percent

COLLEGE OF GEOSCIENCES POLICY:

http://geobusiness.tamu.edu/policies/research/College%20of%20Geosciences%20IDC%20Return%20policy_Revisions%20Adopted%2004082016.pdf

{College of Geosciences Policy to be reviewed in the Spring of 2017}

PIs: IDC return for proposals with multiple PIs will be proportional to their contribution with the proposal.

Departments: The allocation will be based on proposals that are submitted through and approved by the department head. The department will receive IDC for PIs adloc within the specific department. IDC return for proposals from multiple units will be proportional to PI's contribution. *IDC allocation must be agreed prior to routing of the proposal for signatures.*

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

College: The College receives an annual variable percentage directly from the university. In 2014 this reflected 21%.

Board of Regent Centers that are formal partnerships between two or more colleges or are tied to a specific Geosciences Department:

- The Berg Hughes Center for Petroleum and Sedimentary Systems
- Center for Atmospheric Chemistry and the Environment (CACE)
- Geospatial Information Systems and Technology (GeoSAT)
- Texas Center for Climate Studies (Atmospheric Sciences)
- Center for Tectonophysics (Geology & Geophysics)

The College of Geosciences will provide up to a 5% IDC return to these centers based on the following criteria:

- The College up to 5% contribution *must be matched* by contributions up to 5% from departments and/or PIs. This would result in up to 10% IDC return to the center from Geosciences.
- Proposals must include at least one PI from the College of Geosciences.
- Proposal must be routed through a Geoscience department.
- IDC return will only be considered for proposal from PIs who are members of the specific center.
- The proposal contributes to the center mission and strategic plan.
- Center Directors and Department Heads approve the proposal.
- An IDC return match from other university units comparable to their PIs engagement up to 10% is required.

Laboratories:

- R. Ken Williams '45 Radiogenic Isotope Chemistry Laboratory
- Stable Isotope Geosciences Laboratory
- ODASES Laboratory

The College of Geosciences will provide up to 5% IDC return to college approved shared facilities/laboratories based on the following criteria:

- The laboratory must be approved as College of Geosciences shared facility.
The College of Geosciences up to 5% contribution must be match by contributions up to 5% from the Geosciences Departments and/or PIs. This would result in up to 10% IDC return to the facility from Geosciences.
- Proposals must be routed through a Geoscience department
- IDC return will only be considered for proposal from PIs who are members of the specific facility.
- The proposal contributes to the center mission and strategic plan.
- Facility Directors and Department Heads must approve the proposal.
- If more than one college is engaged then contributions from Geosciences will be proportional to PI contribution up to 10%.
- An IDC return match from other university units comparable to their PIs engagement up to 10% is required.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

ALSO, the following requirements must be met to receive IDC distribution from the College:

- Centers/Laboratories must have on file in the Dean's office a copy of the Center or Laboratory bylaws that specifically address the proposed IDC uses and allocation procedures.
- The center/facility must have a current strategic plan and implementation strategy on file in the Dean's office.
- Proposals approved by the center/facility director must specifically contribute to the defined mission of the center.
- The center/facility provides to the Dean's Office an annual report in the approve format including an accounting of IDC use.
- Center/facility directors will provide at the time of IDC allocations a funding request. This request will include a list of funded proposals, requested IDC return, and verification of unit match(s).

***Note that IDC allocation and Matches must be agreed to by multiple PIs and Units prior to routing of the proposal for signatures. Failure to do so forfeits IDC return from the college.*

- Cost Sharing - Cost sharing is that portion of a project or program cost that is not reimbursed by the sponsor.
- Cost-sharing represents a commitment by the University.
- May be required by the sponsor as a condition of the award (mandatory) or may be offered by the University in excess of mandatory cost sharing requirements (voluntary).
- It is important to realize that whether cost sharing is required by the sponsor or is offered by the University or PI voluntarily, it must be tracked and reported by the University.
- Once the award is made, all cost sharing commitments are considered to be mandatory and as such represent binding obligations of the University.
- The University must provide a means of accumulating and documenting cost sharing incurred by the University, accounted for and reported in a manner consistent with requirements set forth by Texas A&M University, federal regulations and sponsoring agencies.
- All voluntary cost share must be approved by the Senior Associate Vice President for Research Administration, in advance, prior to proposal submission.
- Cost Share Policy: <http://rules-saps.tamu.edu/PDFs/15.01.01.M1.03.pdf>

International Research Grant Programs

- Texas A&M-CAPES (with Brazilian universities)
- Texas A&M-CONACYT (with CONACYT-member Mexican universities and research centers)
<http://mexico.tamu.edu/Partnerships>

Limited Submission Proposal Selection – Limit Funding agencies often limit the number of applications they will accept from an institution whereby:

- limiting the number of proposals which may be submitted
- limiting the type of institutions that can apply
- limiting PIs by stage of career

The VPR office identifies limited submission proposal opportunities:

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- Internal Proposal Submission, Review, and Selection
- A date is established for an email of intent to be sent to the OVPR
- An internal proposal must be submitted electronically using **e-proposal**: <https://eproposal.tamu.edu>
- **Note:** Be prepared to upload a one to three page research plan summary, a two-page bio sketch, and a budget.
- Contact Shelly Martin at shelly.martin@tamu.edu

Research Development Funds

Enable one-time investment in shared research infrastructure to enhance competitiveness for multi-project extramural funding and to facilitate new TAMU capacity <http://rdf.tamu.edu/>

- **Criteria**
 - Benefit to TAMU research enterprise
 - Addition of new technology or resources
 - Transformational “cutting edge”
 - Increase competitiveness for federal or other funding
 - Need for localized technology
 - Multi-unit
- **Requires**
 - Management Plan
 - Sustainability Plan
- **Residual Balances from Fixed Price Sponsored Agreements**
<http://rules.tamu.edu/PDFs/15.01.01.M1.02.pdf>

Intellectual Property (IP) <http://otc.tamu.edu/ForInventors/IntellectualPropertyRights>

Texas A&M System Technology Commercialization:

- Assist those associated with the System in the protection, licensing and commercialization of their discoveries.
- Ensure the equitable distribution of royalties and other monetary benefits resulting from the commercial application of IP.
- See that commercialization activities benefit the research, education and outreach missions of the System into the future.
- Submit a disclosure form to the OTC for all inventions and copyrightable works that you feel may solve a significant problem and/or have significant commercial value.
- The disclosure form documents the circumstances under which your invention occurred or the details of the completion of your copyrightable work and provides the information necessary to evaluate patentability, inventor/authorship issues, commercial potential, and any obligations to research sponsors.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

Faculty Consulting and External Professional Employment

- System Regulation 31.05.01 <http://policies.tamus.edu/31-05-01.pdf>

The system encourages its faculty members to make their expertise available to business, industry, government, professional societies and other appropriate entities. Such professional engagements serve to strengthen the individual employee, serve the public and contribute to the improvement of education, leadership development, research and service.

- Member approval of each faculty consulting and/or external professional employment engagement will be for no more than one year in duration; approvals expire at the end of August each fiscal year.

IV. RESEARCH COMPLIANCE

IRB <https://vpr.tamu.edu/compliance/rcc/irb/sops/standard-operating-procedures>

- Protection of human and animal subjects involved in research, the safety of our faculty, staff, and students involved in conducting research, and the welfare of the public.
- It is the responsibility of the Principal Investigators (PIs) to carry out their research in compliance with all federal, state, and university requirements, with approval from the appropriate university committee, such as the:
 - Human Subject - Institutional Review Board (IRB)
All individuals engaged in human subjects' research that is sponsored by TAMU must submit an application to the IRB prior to commencement of any research activities.
 - Any faculty, staff, student, or agent of Texas A&M in connection with his or her institutional responsibilities.
 - Any employee or agent of Texas A&M using any property or facility of Texas A&M; or involved in the use of Texas A&M's non-public information to identify or contact human research participants or prospective participants.
- **Modifications to the Protocol**
 - The IRB must approve all modifications to the research activities and applications prior to implementation.
 - Minor changes proposed for previously approved research may be reviewed using the expedited review procedure. A minor modification is defined as a change that would not materially affect an assessment of the risks and benefits of the study or does not substantially change the specific aims or design of the study.
 - When a proposed change in a greater than minimal risk research study is not minor, the IRB must review and approve changes at a convened meeting before implementation. A major modification is defined as any change which materially affects an assessment of the risks and benefits of the study or substantially changes the specific aims or design of the study.
 - Promptly report all adverse events or deviations from the IRB-approved study. Investigators are responsible for reporting non-compliance.
 - Any change, divergence, or departure from the study design or procedures of a research protocol that affects the subject's rights, safety, or wellbeing and/or the completeness, accuracy, and reliability of the study data constitutes non-compliance. For

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- example, enrollment of more subjects than the number approved by the IRB is non-compliance and must be reported promptly.
- The IRB will consider how often continuing review will be required. Federal regulations (45 CFR 46) require review to occur on or before the 12-month anniversary date of the previous IRB approval.
 - When a human subjects research study has been completed. Researchers should inform the IRB that a study has ended by submitting an IRB completion report following the end of the study.
- **Roles and Responsibilities (IRB)**
 - **Institutional Official (IO) – VPR**
 - **IRB** - has the authority to review, approve, require modifications in, or disapprove all human subject research activities that fall within its jurisdiction. The IRB is an administrative body within
 - **Department Heads and Deans** - Every IRB protocol includes a signature of the PI's supervisor as a part of the process. Supervisors are responsible for ensuring that research involving the use of human subjects is appropriately reviewed and approved by the IRB prior to the initiation of any work.
 - **Principal Investigators** - The PI is the one individual researcher who is designated by the institution to direct a project or program and who is responsible to the institution for the scientific and technical direction of that project or program. The PI is the ultimate protector of the research participant's rights and safety and is obligated to be personally certain that each participant is adequately informed and voluntarily consents to participate in the research. The PI must personally ensure that every reasonable precaution is taken to reduce to a minimum any risk to the participant. The PI also assumes responsibility for compliance with all federal, state, and institutional rules and regulations related to research involving humans and human subject-derived information and materials. Investigators may not initiate any research involving humans without prior IRB review and approval.
 - **Resources for Human Subjects Research**
 - Certificate of Confidentiality
 - Conflict of Interest Information
 - Consent Information
 - FAQ
 - Glossary of Terms
 - Investigator Self-Assessment Checklist for Human Subjects Research
 - IRB Classroom Guidance and Checklist
 - Payment of Survey and Research Participants SAP
 - Protection of Pupil Rights Amendment (PPRA)
 - Responsibilities for Investigators
 - Rules for FERPA in Research
 - Submission Deadlines for IRB Meetings
 - Guidance on Public Use Data Sets
 - IRB Contacts

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- **Who Needs Approval**

All research conducted by a member of the faculty or staff of Texas A&M University, or a Texas A&M System component with a signed Memorandum of Understanding (MOU) with Texas A&M, involving any of the agents/materials listed below must be approved by the Texas A&M Institutional Biosafety Committee (IBC) prior to initiation:

- Pathogens and potential pathogens of humans, animals, or plants
- Materials potentially containing human pathogens (including human blood, tissue, and cell lines; non-human primate blood, tissue, and cell lines)
- Recombinant DNA (and RNA), including creation or use of transgenic plants and animals
- Select agents and toxins (see <http://www.selectagents.gov/>) including strains and amounts exempted from the select agent regulations
- Any material requiring a Center for disease control CDC import license or a USDA permit

IBC

- **Documentation Needed**

- The initial step for approval to work with biohazards is completing the Institutional Biosafety Committee permit application.
- Principal investigators need to notify the IBC when information changes in the approved IBC permit, such as personnel, laboratory location, procedures, funding, etc. If such changes occur, the principal investigator will be required to fill out an amendment form.
- Protocols are currently approved for the duration of three years with annual renewals and laboratory inspections.
- Annual renewal forms must be submitted 60 days before the anniversary of the IBC permit approval.

- **Roles and Responsibilities**

- Heads and Deans - approves of all the information as presented; research is appropriately reviewed and approved by the IBC prior to the initiation of any work; and ensuring the facilities and infrastructure are adequate for the proposed work
 - Principal Investigators (PIs) The PI is designated to direct a project and who is responsible to the institution for the scientific and technical direction of that project. It is the responsibility of the PI to carry out their research in compliance with all federal, state, and University requirements with approval from the IBC. Principal Investigators must be trained and knowledgeable in appropriate laboratory techniques, safety procedures, and hazards associated with handling infectious agents and are responsible for the conduct of work with any infectious agents or materials. The PI is responsible for the proper training of laboratory staff and for enforcement of IBC rulings pertaining to lab specific research. The PI is also responsible for lab manuals, SOPs, licenses, and permits for transport and use of biological agents and recombinant DNA.
- When working with infectious materials, the proper degree of protection is of utmost importance. Protection for laboratory personnel, the environment and the local community must be considered and ensured.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- The protections required by these types of activities are defined as biosafety levels. Biological safety levels are ranked from one to four and are selected based on the agents or organisms on which the research or work is being conducted. Each level up builds on the previous level, adding constraints and barriers.
 - **BS Level 1** - usually pose a minimal potential threat to laboratory workers and the environment. Research with these agents is generally performed on standard open laboratory benches without the use of special containment equipment. Training on the specific procedures is given to the lab personnel, who are supervised by a trained microbiologist or scientist.
 - **BS Level 2** - work with agents associated with human disease, (example – HIV) great care is used to prevent percutaneous injury
 - **BS Level 3** – examples: Yellow fever, St. Louis encephalitis and West Nile virus. Work with these agents is strictly controlled and must be registered with all appropriate government
 - **BS Level 4** - high risk of life-threatening disease. Examples are the Ebola virus
- **Resources** <http://rcb.tamu.edu/biohazards/resources>
 - Biosafety Guidance sheets
 - BL2 Laboratory Inspections
 - Laboratory Coat Laundry Guidelines
 - Working with Pregnant Sheep Inside Facilities
 - Biosafety Cabinet certification information
 - Biosafety Inspection Checklist Examples
 - ABSL1 Inspection Checklist
 - ABSL2 Inspection Checklist
 - BL1 Inspection Checklist
 - BL1 Inspection Checklist with Drosophila work
 - BL1-P Inspection Checklist
 - BL2 Inspection Checklist
 - Biosafety Occupational Health Program
 - BL2 Biosafety Laboratory Manual Checklist and Suggested Table of Contents
 - Checklist for New Researchers
- **Biosafety Training**
 - All personnel listed on a biosafety level two (BL2) IBC permit must complete BL2 training, provided by the Office of Biosafety, before being permitted to enter and work in the BL2 lab. BL2 training is offered weekly and upon special request.
 - Principal Investigators conducting research involving recombinant DNA molecules must complete *NIH Guidelines* training. This training is offered online via the CITI program.
 - All personnel listed on a biosafety level three (BL3) permit must complete BL3 training, provided by the Office of Biosafety, before being permitted to enter and work in the BL3 lab. BL3 training is available upon request, as needed.
 - Documentation of Lab-Specific Training: The Principal Investigator is responsible for providing lab-specific training. Each employee working in BSL2 and above laboratories must receive and document the receipt of lab-specific training.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- **Responsible Conduct of Research**
 - Commitment to conducting research responsibly and ethically.
 - Research Misconduct, Data Management, Conflict of Interest, Collaborative Science, Responsible Authorship, Mentoring, Peer Review, Animals Research, and Human Subjects Research.
 - Training is offered by the Collaborative Institutional Training Initiative
 - This training meets the NSF requirements for RCR training for student and postdoctoral researchers working on an NSF-sponsored project.
 - Group: Social and Behavioral Responsible Conduct of Research
 - Introduction to the Responsible Conduct of Research
 - Research Misconduct
 - Data Acquisition, Management, Sharing and Ownership
 - Publication Practices and Responsible Authorship
 - Peer Review
 - Numerous others (<https://www.citiprogram.org/>)

- **Export Controls** <https://vpr.tamu.edu/resources/export-controls>
 - Regulate the conditions under which certain information, technologies, and commodities can be transmitted to foreign persons or entities in the United States or abroad.
 - Restrict or prohibit the transaction of business with certain countries, persons, and entities that have been sanctioned by federal agencies as a threat to important U.S. interests.
 - Restrict the shipment, transmission or transfer of certain items, software, technology, pathogens and services from the United States to foreign countries.
 - Restrict as “deemed exports” release of controlled physical items or controlled information to foreign nationals located in the United States.

- **Roles and Responsibilities**
 - Texas A&M University: comply with US export control laws and regulations while maintaining an open research environment that welcomes the participation of researchers from around the world.
 - Individual Responsibility: Note that it is College Policy that all college employees and students must complete every two years the on-line export control online training - 2111212: Export Controls & Embargo offered by TAMU. [See the following site for further TAMU information http://vpr.tamu.edu/resources/export-controls/training](http://vpr.tamu.edu/resources/export-controls/training)
 - All University employees and students, visiting scientists, postdoctoral fellows, and other persons retained by or working at or for the university must conduct their affairs in accordance with United States export control laws and regulations. There are severe institutional and individual sanctions for violations of export controls laws including the loss of research funding, loss of export privileges, as well as civil and criminal penalties including imprisonment. Faculty, staff and students must be aware of and are responsible for the export control implications of their work and must ensure that their activities conform to export control rules and regulations. Any required license/approval must be in place before exporting anything that is deemed controlled.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- University Administrators: All University employees with managerial or supervisory authority over foreign persons or projects involving controlled information or controlled physical items should view export control compliance as an important part of their day-to-day responsibilities. University employees with managerial or supervisory authority over foreign persons or projects involving controlled information or controlled physical items are required to take the Export Controls Office's basic export control online training course at least once every two years.
- **Texas A&M Export Controls Resources**
 - Biological Agents Overview <https://vpr.tamu.edu/resources/export-controls/biological-agents-overview>
 - Export Controls Basics <https://vpr.tamu.edu/resources/export-controls/export-control-basics>
 - Export Control Compliance Program Manual https://vpr.tamu.edu/resources/export-controls/export-control-manual-5_1
 - Texas A&M University Rule 15.02.99.M1 Export Controls <http://rules-saps.tamu.edu/PDFs/15.02.99.M1.pdf>
 - The Texas A&M University System Policy 15.02 - Export Controls <http://policies.tamus.edu/15-02.pdf>
 - Export Controls Basics for Distance Education <https://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education>
- **Federal Resources**
 - Export.gov <http://www.export.gov/index.asp>
 - U.S. Department of State <http://www.pmddtc.state.gov/>
 - International Traffic in Arms Regulations (ITAR) http://www.pmddtc.state.gov/regulations_laws/itar.html
 - U.S. Department of Commerce <http://www.bis.doc.gov/>
 - Export Administration Regulations (EAR) <http://www.bis.doc.gov/index.php/regulations/export-administration-regulations-ear>
 - U.S. Department of the Treasury <https://www.treasury.gov/Pages/default.aspx>
 - Office of Foreign Assets Control Regulations (OFAC) <https://www.treasury.gov/about/organizational-structure/offices/Pages/Office-of-Foreign-Assets-Control.aspx>
- **Additional Resources**
 - TAMU Export Control Office: Rose Ndegwa - (979) 862-6419
 - Online Training - 2111212: Export Controls & Embargo Training <https://vpr.tamu.edu/resources/export-controls/training>
- **Laboratory Safety**
 - It is the responsibility of *all* who work or study in laboratories to do so in a safe and environmentally responsible manner.
 - It is the policy of Texas A&M University to provide and maintain a safe environment for its faculty, staff, students, and visitors. The Laboratory and Chemical Safety Group of

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

Environmental Health & Safety provides the. EHS has established the Laboratory Safety Manual as a resource for faculty and laboratory personnel, as well as anyone interested in laboratory safety. This manual is intended to comply with federal, state, and local regulations, as well as industry best practices. The Laboratory Safety Manual is a compilation of suggested work practices, protocols, and procedures to work safely in TAMU laboratories. The document is *not* exhaustive and should not be considered the only reference for health and safety concerns. The manual is available at:

<https://www.chem.tamu.edu/rgroup/wooley/pag/Safety/3%20TAMU%20Lab%20Safety%20Manual%202008%20LSM%20CH%201-5%202-4-09.pdf>

- **Research Conduct** <http://rcb.tamu.edu/responsible-conduct-of-research>

The responsible and ethical conduct of research (RCR) is critical for excellence, as well as public trust, in science and engineering. Consequently, education in RCR is considered essential in the preparation of future scientists and engineers. Section 7009 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act (42 U.S.C. 1862) requires that each institution that applies for financial assistance from the Foundation for science and engineering research or education describe in its grant proposal a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project. <http://edocket.access.gpo.gov/2009/E9-19930.htm>.

- **Institutional Research Responsibilities**

- An institution must have a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students, and postdoctoral researchers who will be supported by NSF to conduct research. As noted in GPG Chapter II.C.1e, institutional certification to this effect is required for each proposal.
- While training plans are not required to be included in proposals submitted to NSF, institutions are advised that they are subject to review, upon request.
- An institution must designate one or more persons to oversee compliance with the RCR training requirement.
- Institutions are responsible for verifying that undergraduate students, graduate students, and postdoctoral researchers who receive NSF funds (support from salary and/or stipends) to conduct research on NSF grants have received training in the responsible and ethical conduct of research.

- **Conflict of Interest**

- The Department of Health and Human Services enacted has established rules regarding financial conflicts of interest in research.
- The new requirements for disclosure of investigator financial conflicts of interest at the university, regardless of job title, who are responsible for the design, conduct, or reporting of research or research activities.
- Certify annually through MAESTRO pursuant to the Texas A&M System Regulation 15.01.03 *Financial Conflicts of Interest in Sponsored Research*.

COLLEGE OF GEOSCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- **Professional Development Skill Sets**
 - Communication skills (written, oral, cultural, legislative)
 - Mentoring (career management, personnel growth)
 - Knowledge Base
 - Supervision
 - Team building (working with others)
 - Management (personnel, project, laboratory, financial)
 - Internationalization
 - Wellness
 - Proposal writing (“Think Big”; interdisciplinary, Impact)
 - Conflict management
 - Administration

V. INFORMATION RESOURCES ROLES AND RESPONSIBILITIES OVERVIEW (IT)

The university and state, among others invest annually in electronic information resources to allow each of us to be effective in our day to day activities. These resources including computer systems, networks, and data, all of which are vulnerable to a variety of threats which have the potential to compromise the confidentiality, integrity, and availability of the information. Each of us is responsible to ensure that appropriate safeguards remain in place to protect these investments.

Texas A&M University Rules and Standard Administrative Procedures (SAPs) exist to ensure compliance with State and Federal laws regarding the protection of electronic information resources. Where necessary, the College of Geosciences has procedures which describe the implementation of university rules and SAPs regarding information resources. These College of Geosciences information resource procedures will be reviewed annually to ensure compliance with TAMU Rules or SAPs.

This document, identifies the essential elements of the applicable university Rules and SAPs. Included in several of the explanations are the procedures which the IT Staff uses to meet the requirements for the information resources for which they are custodians. Also included are the forms used by the staff to provide the necessary documentation of compliance. Per University policy resource owners or custodians of information resources are responsible for complying with university policies, how individuals ensure compliance is ultimately left up to the individual. The Geoscience IT procedures and forms are provided as a courtesy. If you have questions about a specific SAP, please refer to the relevant Rule of SAP or contact the Geosciences Web Helpdesk (help@geos.tamu.edu) or the university IT support group (helpdesk@tamu.edu).

To whom does this apply?

In short, everyone that uses or accesses electronic information resources (the procedures, computer equipment, computing facilities, software and data which are purchased, designed, built, operated and maintained to collect, record, process, store, retrieve, display, report and transmit information) has some role in information resource security. University Rule [29.01.03.M1](#) provides details, but if you have a computer, resource application or email account at Texas A&M University, you are responsible to some degree concerning system security and are expected to abide by all applicable parts of the University Rules and SAPs.

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

Two specific roles for are defined by the university in regard to information resources:

- The Owner of an information resource is responsible for determining the safeguards for and access to his or her information resources.

(If you are responsible for determining who has an account on an information system and what they can access, you are likely an owner.)

- The Custodian of an information resource is responsible for implementing the owner-defined safeguards and access controls to an information resource.

(If you are responsible for creating accounts, installing software, configuring controls, and similar administrative functions for the owner, you are a custodian.)

An individual may have both roles for a given information system. These two roles have specific responsibilities to ensure compliance as discussed below.

What are my responsibilities as a resource owner, custodians and user?

All information resource owners, custodians and users must:

- Classify the university data under their control according to university guidelines and protect it accordingly.
- Immediately report breaches of security through the established reporting chain

In addition, individuals having ownership or custodial responsibility for electronic information resources of Texas A&M University must:

- Afford the appropriate safeguards to all information resources in accordance with TAC 202 and applicable University Rules and SAPs.
- Assess their security posture and measure their compliance with TAC 202 and applicable University Rules and SAPs on an annual basis using tools provided by the university.
- File the security assessment report on an annual (fiscal year) basis using tools provided by the university.
- Meet information resource hygiene requirements which may include, but is not limited to:
 - Computer platform management - security updating and patch management, remote access controls
 - User Account Management and documentation – creation, modification, removal, review & expiration
 - Privileged and special account management and documentation
 - Password based authentication rules – length, complexity, expiration
 - Acceptable use and responsible computing
 - Scanning and vulnerability assessments
 - Authorized software
 - Network access and configuration
 - Physical security
 - Security incident reporting

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK (Last Revision: 22 December 2016)

- Portable device protection
- Privacy
- Third party access and security
- Encryption of confidential, sensitive, payment card and protected health information
- Wireless network access
- Disaster recovery and business continuity

How do I meet my responsibilities?

Meeting your responsibility for data resources requires knowing the classification of the data you use (for example, Confidential, Sensitive or Public) and following university policies and procedures for protecting this data as appropriate. Certain classifications of data such as Confidential have specific protections which must be afforded. Other classifications, such as Public, have very few specific protections that must be afforded to keep the data out of the public eye.

Resource owners are responsible to see that accurate, annual assessments of IT risk are performed on their resources and that any found deficiencies are addressed as part of a risk management process. Resource custodians are required to submit an annual risk assessment through the university-provided assessment and reporting system (ARCHER). The college has created procedures and forms to assist meeting these university requirements. The college procedures provide a documentation framework to ensure compliance with university requirements. Implementation of these or individual procedures is the responsibility of the resource owner.

What if I don't?

The consequences posed by a lack of compliance are real. Improperly protected information resources expose the individual, college and university to increased risk which could result in violation of state and federal law, loss of funding opportunities, degradation of individual and institutional reputation, civil litigation, or even criminal prosecution. Access to university networks may be removed for individuals failing to comply with the university requirements.

University SAPS and Rules Pertaining to Information Resources

Below are links to relevant university SAPs and Rules pertaining to resource information.

- Security of Electronic Information Resources [29.01.03.M1](#)
- Network Scanning and Vulnerability Assessments [\(SAP\) 29.01.03.M1.01](#)
- Information Resources - Acceptable Use [\(SAP\) 29.01.03.M1.02](#)
- Information Resources - Account Management [\(SAP\) 29.01.03.M1.03](#)
- Information Resources - System Administrator and Special Access [\(SAP\) 29.01.03.M1.04](#)
- Information Resources - Authorized Software [\(SAP\) 29.01.03.M1.05](#)
- Information Resources - Backup and Recovery [\(SAP\) 29.01.03.M1.06](#)
- Information Resources - Change Management [\(SAP\) 29.01.03.M1.07](#)
- Information Resources - E-mail Use [\(SAP\) 29.01.03.M1.08](#)
- Information Resources - Crisis Management [\(SAP\) 29.01.03.M1.09](#)
- Information Resources - Internet and Intranet Use [\(SAP\) 29.01.03.M1.10](#)

COLLEGE OF GOESCIENCES RESEARCH HANDBOOK
(Last Revision: 22 December 2016)

- Information Resources - Intrusion Detection [\(SAP\) 29.01.03.M1.11](#)
- Information Resources - Network Access [\(SAP\) 29.01.03.M1.12](#)
- Information Resources - Network Configuration [\(SAP\) 29.01.03.M1.13](#)
- Information Resources - Password-based Authentication [\(SAP\) 29.01.03.M1.14](#)
- Information Resources - Physical Security [\(SAP\) 29.01.03.M1.15](#)
- Information Resources - Portable Devices: Information Security [\(SAP\) 29.01.03.M1.16](#)
- Information Resources - Privacy [\(SAP\) 29.01.03.M1.17](#)
- Information Resources - Security Monitoring [\(SAP\) 29.01.03.M1.18](#)
- Information Resources - Security Awareness and Training [\(SAP\) 29.01.03.M1.19](#)
- Information Resources - Platform Management [\(SAP\) 29.01.03.M1.20](#)
- Information Resources - Security Life Cycle for Information Systems [\(SAP\) 29.01.03.M1.21](#)
- Information Resources - Vendor, Third Party, and Cloud Services Security [\(SAP\) 29.01.03.M1.22](#)
- Information Resources - Compromises and Vulnerability [\(SAP\) 29.01.03.M1.23](#)
- Information Resources - Notification of Unauthorized Access, Use or Disclosure of Sensitive Personal Information [\(SAP\) 29.01.03.M1.24](#)
- Information Resources - Use of Peer-to-Peer File Sharing Software [\(SAP\) 29.01.03.M1.25](#)
- Information Resources - Information Security Risk Assessment Reviews [\(SAP\) 29.01.03.M1.26](#)
- Exclusions from Required Risk Mitigation Measures [\(SAP\) 29.01.03.M1.27](#)
- Information Resources - Security Surveillance [\(SAP\) 29.01.03.M1.28](#)
- Data Classification and Protection [\(SAP\) 29.01.03.M1.29](#)
- Information Resources - Wireless Access [\(SAP\) 29.01.03.M1.30](#)
- Encryption of Confidential, Sensitive, and Protected Health Information [\(SAP\) 29.01.03.M1.31](#)
- Information Resources - Disaster Recovery Planning [\(SAP\) 29.01.03.M1.32](#)
- Information Resources - Firewalls [\(SAP\) 29.01.03.M1.33](#)
- Information Resources - Project Management [\(SAP\) 29.01.03.M1.34](#)
- Information Resources - Electronic and Digital Signatures [\(SAP\) 29.01.03.M1.35](#)
- Rules for Responsible Computing [29.01.03.M2](#)
- Employee Email [\(SAP\) 29.01.03.M2.01](#)
- Official University Photos [\(SAP\) 29.01.03.M2.02](#)
- Incidental Computer Use [29.01.03.M3](#)
- Accessibility of Electronic Information Resources [29.01.04.M1](#)
- Web Accessibility and Usability Procedures [\(SAP\) 29.01.04.M1.01](#)