

**Strategic Plan  
2014- 2020  
Department of Geology and Geophysics  
College of Geosciences  
Texas A&M University**

**Preamble**

The strategic plan for the Department of Geology and Geophysics has been generally guided by Vision 2020 and the following specific imperatives of Vision 2020:

- Elevate our faculty, teaching and research;
- Strengthen our graduate programs;
- Enhance the undergraduate academic experience;
- Diversify and globalize the department;
- Commit to Texas;
- Build community and metropolitan connections; and
- Increase access to knowledge.

**Vision**

The Department of Geology and Geophysics is engaged in cutting-edge scholarship related to Earth and its complex systems and processes: the interactions among solid Earth, hydrosphere, biosphere, as they impact society. The department is committed to excellence in discovery and creation of new knowledge about Earth, enabling life-long learning by all students about Earth processes and the impacts and engagement of faculty, students and the public addressing and solving the challenges associated with stewardship of Earth.

With this vision, the Department of Geology and Geophysics seeks to lead in the discovery, dissemination, and application of knowledge about Earth (including its physical, chemical, and biological components and their interactions). By lead, we mean:

- Educate students of diverse backgrounds who rise to leadership positions in industry, government, and education.
- Conduct 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.

**Mission**

The primary mission of the Department of Geology and Geophysics is framed by being created as a Land Grant University and serving as a Sea Grant University and a Space Grant University. Through these strong foundations our mission is to:

- Provide quality education;
- Provide cutting-edge research;

- Provide outreach to the citizens of Texas extending to the national and international arena;
- Advance new understanding of the Earth System and apply these to the needs of society;
- Prepare the next generation of geoscientists to conduct research, to find and develop natural resources, and to measure and respond to environmental change.

**Values/Goals**

As faculty we value the creation of knowledge, and the imparting of knowledge, skills, values, and ethics to our students that reflect a strong geoscience experience. We value a collegial environment and the atmosphere and resources to facilitate and promote cutting-edge research by our students and faculty. We value a diverse faculty and geoscience student body. We also value excellence, integrity, leadership, and service. We value providing our students with a sense of working on teams and possessing quantitative skills. We value our responsibility to the citizens of Texas to provide research outcomes that will help lead the state in providing a sound economic, sustainable base for the future.

We value Earth science that is:

- Rigorous;
- Quantitative;
- Driven by deep, broadly significant questions;
- Grounded in implications for society at large; and
- Interdisciplinary and supported by multiple modes of inquiry (historical observation and inference, modeling, experimentation).

We value education in Earth science that:

- Is focused on knowledge, skills, and values reflecting geoscience expertise;
- Meets the needs of the diverse range of students coming to Texas A&M;
- Benefits from and reflects the research distinctiveness of the faculty; and
- Is rigorously supported by research and assessment.

**SWOT Analysis**

<b>Strengths</b>	<b>Weaknesses</b>
Research-active faculty	Compensation and recruitment packages not competitive w/peer aspirant departments
Research facilities	Faculty/students not representative of state
Quantitative skills	Low technical/facility support

Scientific community leadership	(maintenance, upkeep)
Community outreach (G-Camp, NASA)	Underfunded research programs relative to peer & aspirant departments and research ambitions
Demand for degrees and graduates resulting in high applications and enrollment	Low endowment relative to our peer institutions
Well-connected to industry (Berg-Hughes)	Education model scales poorly to large student numbers

<b>Opportunities</b>	<b>Threats</b>
Interdisciplinary multi-institution funding opportunities growing from Federal sources	Changing university CORE curriculum makes demand for service courses uncertain
Projected increasing demands for Earth Scientists/Earth Science degrees	Decreasing funding for disciplinary, single-investigation projects (Federal & State)
Access to HPC facilities	Changing models of industrial funding (focus on existing large centers)
Opportunities for collaboration in research, education and outreach w/IODP	Growing student numbers not matched by funding needed for existing high impact experiences (field, lab, etc.)
Access to growing college programs in diversity	University-level IT infrastructure a hindrance to efficient function (TAMUDOCS, CONCUR, MAESTRO)
Growing demand for collaboration w/our department from Central/South America & Asia	

## **Critical Issues Related to Vision 2020 Goals**

### **A. Elevate our Faculty, Teaching and Research**

- 1) Growing institutional assessment and instructional demands are restricting faculty time for the creative tasks of proposing new research directions and creating new learning opportunities. Resolving this while maintaining or enhancing existing standards is a critical issue for faculty productivity and retention.
- 2) Rapidly increasing demand for our courses are straining teaching staff. We need additional teaching staff to cover some teaching to meet additional demand while maintaining instructional standards.
- 3) Department lacks parity with other departments (including partnering departments within TAMU and external peer and aspirant departments) in support for technical staff.
- 4) Lack mentoring program for junior faculty and graduate students.

### **B. Strengthen our Graduate Programs and Enhance the Undergraduate Academic Experience**

- 1) Lack named dedicated funds for critical issues/needs, such as tuition, field work, lab analysis.
- 2) Need increased High Impact Learning Experiences (HILE) to address increasing undergraduate population.
- 3) Maintain capstone-quality summer field course.

### **C. Diversify and Globalize the Department**

- 1) The Department (and University) does not represent the diversity of Texas and so our ability to recruit and retain the best students and faculty from across Texas and the US is reduced.
- 2) Limited international research and study abroad programs, including undergraduate and graduate exchange opportunities.

### **D. Attain Resource Parity**

- 1) Need resources to upgrade, maintain, replace and buy new cutting-edge equipment.
- 2) Need to develop high-performance computing (HPC) capabilities.
- 3) Infrastructure is in need of major repairs—classrooms, teaching labs, specimen collections, field equipment, and computers look like third-world University.

### **E. Increase Access to Knowledge by Building Community and Metropolitan Connections as Part of Our Commitment to Texas**

- 1) We offer no distance learning courses, certificates or degrees.
- 2) Missing opportunities to take advantage of locations in Houston to offer face-to-face programs similar to the Mays Business School programs.
- 3) Poor or limited connections with teachers in underserved schools.

## **Critical Issues Related to Provost's Departmental Report Card and Academic Analytics**

### **A. Publication and Citation Record**

- 1) Citations per faculty member
- 2) Citations per publication
- 3) Articles per faculty member
- 4) Total Citations

### **B. Funding Record**

- 1) Grant dollars per faculty member
- 2) Number of grants per faculty member
- 3) Percent of faculty with grants
- 4) Average award per faculty member

## **Action Plan Related to Vision 2020 Goals**

### **A. Elevate our Faculty, Teaching and Research**

- 1) Create flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research and publication.
- 2) Create three professors of instruction positions with 3-5 year contracts to help cover large number of student numbers. This will also provide more time for faculty to dedicate to proposal writing and publication.
- 3) Develop a fund for salary continuity between grants for technical support staff.
- 4) The department will partner with the College to create a mentoring and training program for junior faculty and graduate students. The faculty mentoring program will be run by the department head and T&P committee chair and will pair senior faculty with junior faculty to help mentor with career growth. The student mentoring program will be run by the department head and the graduate director and will emphasize career planning.

### **B. Strengthen our Graduate Programs and Enhance the Undergraduate Academic Experience**

- 1) Use the upcoming capital campaign to raise named dedicated funds for critical issues/needs, such as tuition, field work, data analysis.
- 2) Align the curriculum to educate students to be leaders of the future.
- 3) Ensure the stability of our capstone-quality summer field course.

### **C. Diversify and Globalize the Department**

- 1) Develop a strategy to recruit underrepresented students and faculty from around Texas and the US, so that we better represent the diversity of Texas and the US.
- 2) Expand our international research and study abroad programs, including undergraduate and graduate exchange opportunities with Costa Rica, Mexico and China.

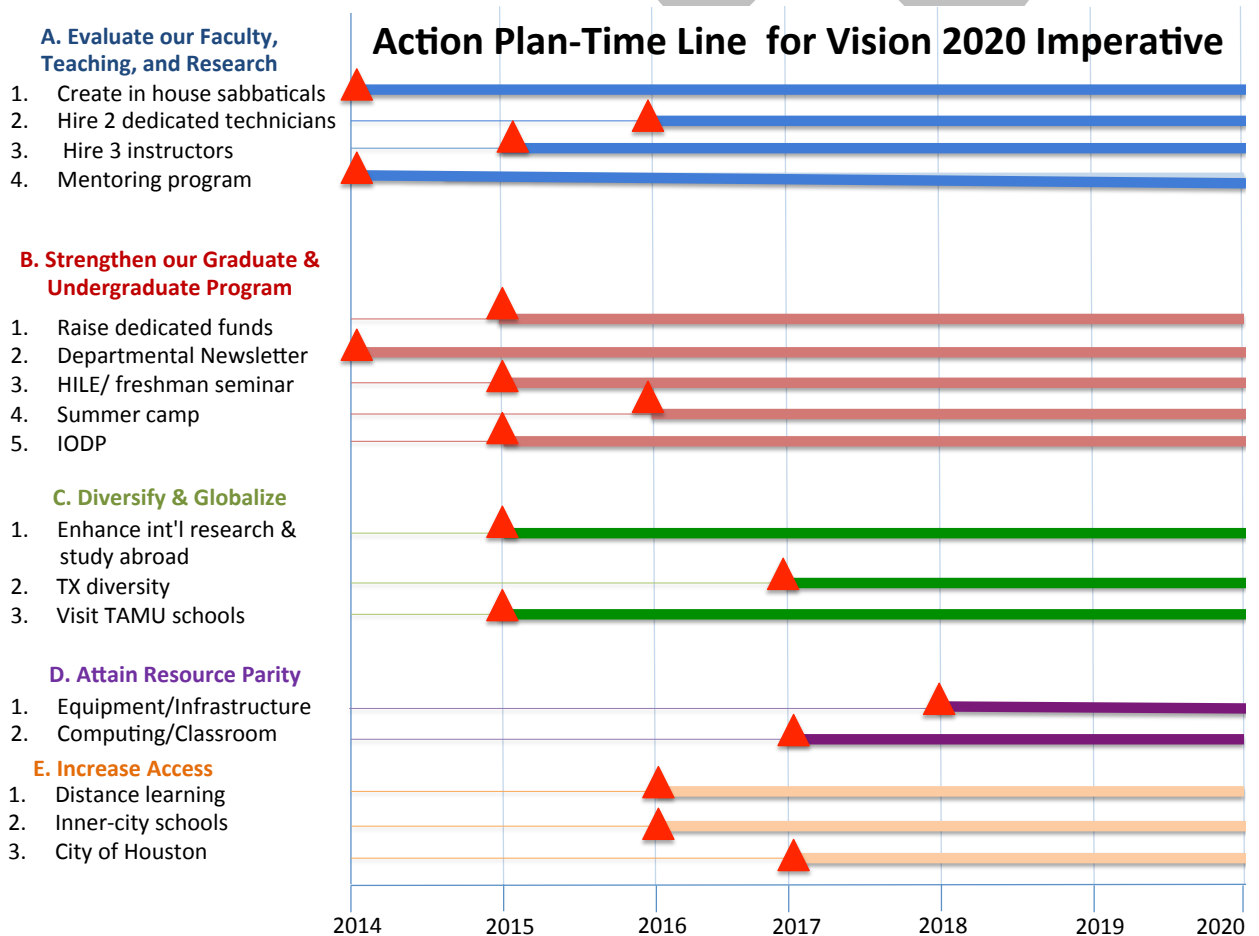
### **D. Attain Resource Parity**

- 1) Use the upcoming capital campaign to raise dedicated funds to upgrade, maintain, replace and buy new cutting-edge equipment.

- 2) Develop world-class High Performance Computing facilities.
- 3) Create a plan of action to seek University help to address infrastructure problems, specifically, size-appropriate classrooms, collaborative learning environments, internet connectivity, etc.

**E. Increase Access to knowledge by Building Community and Metropolitan Connections as part of our Commitment to Texas**

- 1) Create distance learning courses, certificates and Master of Geoscience degree. This proposed solution will help address our commitment to Texas and build our community and metropolitan connections.
- 2) Take advantage of existing locations in Houston to offer face-to-face programs similar to the Mays Business School programs.
- 3) Use G-camp connections to build a network with teachers in underserved schools to expand our connections with students and teachers of Texas for recruiting.



## **Action Plan Related Provost's Report Card and Academic Analytics**

### **A. Publication and Citation Record**

- 1) Create flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research and publication.
- 2) Create flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research and publication.
- 3) Create flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research and publication.
- 4) Create flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research and publication.

### **B. Funding Record**

- 1) Work with Academic Analytics to have grants from industry counted as part of our total grant number and use flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research.
- 2) Work with Academic Analytics to have grants from industry counted as part of our total grant number and use flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research.
- 3) Create flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research.
- 4) Work with Academic Analytics to have grants from industry counted as part of our total grant number and use flexible teaching schedule distributions for faculty to spend dedicated time developing proposals for cutting edge research.

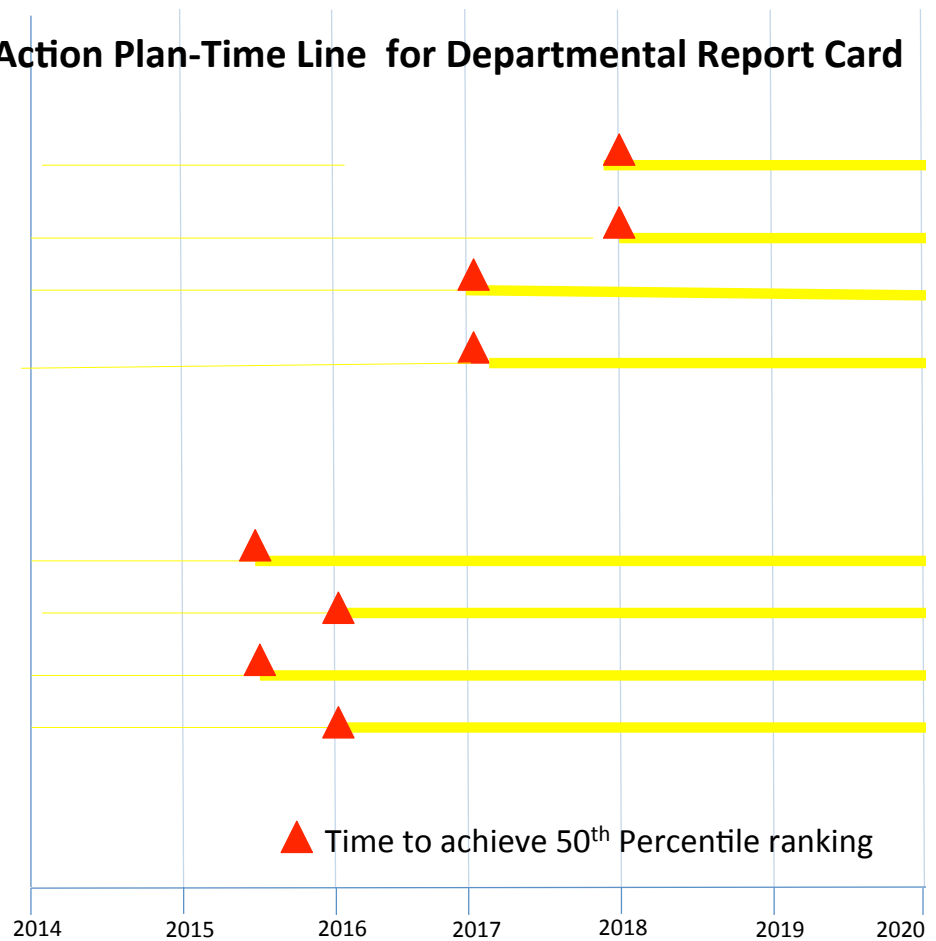
## Action Plan-Time Line for Departmental Report Card

### Publication & Citation Record

1. Citations/faculty member
2. Citations/ publication
3. Articles/ faculty member
4. Total Citations

### Funding Record

1. Grant Dollars/faculty
2. Grants/ faculty member
3. % faculty with grants
4. Average award/ faculty



## Resource Plan

### A. Elevate our Faculty, Teaching and Research

- 1) Flexible teaching schedule distribution (no cost for implementation)
- 2) Three professors of practice (\$158,760)
- 3) Continuity fund (\$60,000)
- 4) Mentoring plans (\$7,000 for mentoring training programs for senior faculty and trips to workshops for junior faculty)

### B. Strengthen our Graduate Programs and Enhance the Undergraduate Academic Experience

- 1) Capital campaign to help raise funds for graduate student tuition (\$240,000), fieldwork (\$90,000), and lab analysis (\$40,000).
- 2) High-impact learning through undergraduate research project (\$60,000 for 60 peer-reviewed undergraduate research proposals per, year 30 in fall and 30 in spring), funds to enhance undergraduate first-year seminars (\$10, 000 per year; \$1,000 per course, 5 courses per semester)
- 3) TAs for fieldcamp (\$18,360), professor salary for field camp (\$60,000), field camp scholarships (\$30,000, 15 scholarships at \$2,000 each)



**C. Diversify and Globalize the Department**

- 1) Travel and recruiting materials (\$15,000)
- 2) International study abroad scholarships (\$30,000, \$1,000 per student)

**D. Attain Resource Parity**

- 1) \$1,000,000 to several million dollars for updating, maintaining, buying cutting-edge equipment.
- 2) Interior facelift (including new computer labs) (\$500,000)
- 3) Maintenance cost for high-performance computing research (\$250,000 per year)

**E. Increase Access to knowledge by Building Community and Metropolitan Connections as part of our Commitment to Texas**

- 1) Distance learning (no cost if outsourced)
- 2) Off-campus face to face teaching (underwritten by distance education fees assessed to classes)
- 3) Ensure funding for G-camp and workshops throughout the year (\$120,000 for summer G-camp and 3 workshops per year)