

Annual Report Fiscal Year: July 1, 2013 - June 30, 2014
College of Science and Mathematics

College of Science and Mathematics Goals and Priorities for FY14

The college continues to be a major contributor to the university in all aspects of its mission. To provide a quick snapshot of the college's impact, here are some "vital statistics": total number of majors enrolled in AY2013-2014 = 1873 (including 206 PhD and 230 MS students); total student credit hours generated in summer 2013, fall 2013, and spring 2014 = 115,167 (30% of total generated at NDSU); total amount of research expenditures in FY13 = \$8.33 M; total number of refereed publications = 467.

The following were specific college goals for FY14, along with a brief progress report:

- 1) *Develop a new, three-year strategic plan with vision statement.* This was put on hold until the arrival of the new Provost and the development of a university-wide strategic plan. However, the college's hiring and budgeting continue to be guided in large part by the academic roadmaps that were developed in FY12 and reaffirmed and reprioritized in FY13.
- 2) *Continue to work towards solutions for major budget gaps in the college including faculty lines not supported by appropriated funding and funds required to accommodate enrollment growth (extra section funding).* With the help of the Provost and President, the college achieved significant success in filling gaps in appropriated funding of tenure-track faculty and staff lines. The entire faculty and staff funding gap in Coatings & Polymeric Materials was covered via internal reallocations and new funding from the President's Office. Half of the appropriated funding gap for three tenure-track faculty positions in Chemistry and Biochemistry and one in Computer Science has been covered by new funding from the Provost's Office. The remainder of the gap for the position in Computer Science was dealt with by reallocation internal to the department. However, there still remains a deficit in appropriated funding for approximately half of each of the three tenure-track positions in Chemistry and Biochemistry. Moreover, every department remains understaffed with respect to faculty or staff or both.
- 3) *Increase support for Teaching Assistants throughout college. This includes increasing the amount of each stipend to market value and increasing the number of stipends in key areas.* A few departments were able to make some progress on this front by internal reallocation of appropriated and/or local funding. At the university level, new funding was allocated to defray a small portion of the current cost of graduate student health insurance. The Dean of Graduate Studies, David Wittrock, was able to provide temporary funding for one additional TA each in Physics and Geosciences. Nevertheless, the low number of TA stipends and the sub-market value of the stipends in every department in the college continues to be a major obstacle to increasing research output and PhD production. As it is, most departments fund a large proportion of their TA's through cannibalization of appropriated faculty lines or local funds including DCE and ICR. Having to use these sources to fund TA's represents a huge opportunity cost due to fewer tenure-track faculty to supervise PhD students and conduct research as well as limits on the ability to provide funds for start-up packages, bridging faculty who are between grants, matching funds, etc. Changes in the DCE and ICR distribution models that might result in fewer funds coming to the departments would represent a grave threat to research and graduate education programs in the college unless that income is replaced with appropriated or another source of funding.
- 4) *Increase the number of state-appropriated tenure-track faculty appointments in key areas.* On the one hand, the college saw a slight increase in appropriated tenure-track faculty positions by the end of this year due to three former administrators returning to their faculty positions and a new position in mathematics being created from the dual-career hire funding pool. On the other hand,

one department (CS) permanently eliminated a tenure-track faculty position to deal with budget shortfalls and some departments have temporarily (we hope) cannibalized faculty positions to provide TA support for general education and support courses. Other departments have had to delay filling vacant positions due to insufficient availability of funds to provide start-up packages and/or lack of adequate laboratory space. Thus, the total number of state-appropriated faculty positions has not increased significantly over the past year, and in fact the number of newly hired tenure-track faculty was the lowest this year of the past four years.

- 5) *Increase the quality and quantity of research and instructional space in the college.* A project involving the renovation/replacement of Dunbar Hall is the number-one capital priority of the university for the next legislative session. If this project is funded by the legislature, it will begin a domino effect that will ultimately result in improved space for at least three or four departments in the college. When the STEM Classroom Building comes on line, some classroom and instructional laboratory space in various buildings occupied by college departments may be freed up for reassignment as research laboratories and faculty and graduate student office space. However, this will only begin to make a dent in our space needs and will require substantial funding for renovation and upgrading of infrastructure (e.g., air-handling equipment). Progress on the math emporium (goal 12) and its temporary siting in the library, should provide upgraded instructional space for pre-calculus math courses in fall 2015. The Statistics department finally was able to move into Morrill Hall and the Psychology Department, the Math Department, and the CSM Dean's Office all completed moves into newly renovated space in Minard Hall.
- 6) *Participate actively in the planning and design of the new STEM classroom building.* The college had two representatives on the planning committee for this building.
- 7) *Increase the overall number of post-docs in the college.* After two successive years (FY13, FY14) with 12 post-docs in the college, this number has increased to by 25% to 15 for FY15.
- 8) *Hire new chairs of Geosciences and Physics.* An internal search for the chair of the Physics Department was successful. A planned national search for a chair of the Geosciences Department was aborted when the Provost's Office was unable to provide promised funding. The term of the current interim chair was extended by one year.
- 9) *Hire a part-time Associate Dean of Academic and Student Affairs.* Dr. Robert Gordon was appointed Associate Dean of Academic Affairs in January 2014. His portfolio includes dealing with student issues, oversight of curriculum development and program assessment, recruitment and retention, faculty development, etc.
- 10) *Continue to work towards diversification of student body, faculty and staff, with special effort towards advancing women and other underrepresented groups through the academic ranks and into administrative positions.* Of the four tenure-track faculty hired into the college this year, two were women. In addition, five of the eight faculty awarded tenure and promotion to associate professor were women. Many of both our male and female faculty are active in FORWARD and one of our departments, Computer Science, won the FORWARD award for improvement in departmental climate.
- 11) *Increase applications and admissions of PhD students (note: this requires significant progress on goals 2, 3, 4 and 5.* College-wide, our PhD admissions have held fairly steady over the past several years in spite of static and inadequate support for graduate teaching assistants and ever declining national success rates at federal grant agencies. Lack of office and laboratory space also remains a serious constraint on growing our PhD programs.
- 12) *Implement an Active Learning Lab or Math Emporium Model for instruction in Math 103, 105, and 107.* Significant progress has been made on this front including identification and renovation of a temporary space in the basement of the library, purchase of furniture and computers, and the development of an MOU among the parties involved. It is intended that the emporium will be operational in fall 2015.
- 13) *Implement a new Professional Science Master degree with initial tracks in Biological Sciences, Mathematics, etc.* We have had extensive discussions on this topic both within the college and

with the College of Business, the College of Graduate Studies, and Distance and Continuing Education. At this point we have decided to start by building a number of graduate-level on-line courses and certificate programs that could ultimately feed into PSM-like degrees. Our concept is to develop a common core of courses that develop managerial and communication skills which can then be combined with discipline-specific courses to constitute a given degree. To really move this initiative forward will require the availability of seed funds to hire a coordinator and adjunct faculty to teach the courses (or buyouts for extant faculty or both). These programs should be self-sustaining after an initial start-up period.

- 14) *Increase the level of development activity in the college. Specifically, work towards doubling the dollar amount of annual giving and raising funds for specific projects.* Considerable groundwork was laid towards this goal. Most importantly, the Director of Advancement position, shared between CSM and CAHSS, was eliminated to free up funding for a Director of Development position, again shared between the two colleges. We have just completed the on-site interviews and hope to make an offer soon and have someone on board by mid-September. In addition, the dean has made a number of visits to alumni and friends of the college across the country. Moreover, the college was also able to take advantage of the new state matching funds program.

Executive Summary of Accomplishments for this Past Year

Teaching

The following college-wide activities were undertaken to improve the quality and efficiency of instruction:

- 1) The college has greatly expanded its learning assistants (LA) program. LA's are undergraduate students who have garnered a grade of B or higher in a given course, receive a positive recommendation from the course instructor, and are willing to participate in the program. They assist the instructor of that course in multiple ways, but primarily by facilitating in-class discussions, group work, problem solving, etc. in large-enrollment courses where such high-impact teaching practices would be all but impossible without such assistance. In the early years of this project, participation was limited to courses in Biological Sciences, Chemistry & Biochemistry, and Physics, but starting fall 2014 we will be employing LA's in seven departments (those above plus Computer Science, Geosciences, Psychology, and Statistics). This program is having a very positive impact on student learning in gateway courses. The expansion of this program was made possible by the strategic reallocation of the majority of the operating funds that the President returned to the college in fall 2013.
- 2) The college and the departments of Biological Sciences, Chemistry & Biochemistry, and Psychology were fully engaged in the Gateways to Completion project in FY14. The focus thus far has been in analyzing student success data and determining action items for improving student success and retention in freshman chemistry (CHEM 121), human anatomy and physiology (BIOL 220), and introductory psychology (PSYC 111). These committees have done very good work and have already begun implementing changes.
- 3) Subsequent to participation in the SENCER (Science Education for New Civic Engagement and Responsibilities) institute during the summer of 2013, the team of professors that teach the UNIV150 "Foundations of Science" has completely transformed this interdisciplinary (Chemistry, Biology, Earth Science, Physics, Psychology) general education science course by making it more integrated and engaging, as well as by

implementing active learning pedagogies and using a “wicked problems” approach to place science in a civic engagement context. Wicked problems are complex, multi-faceted problems facing society that require a multi-/inter-disciplinary approach and defy simple solutions. Examples would be world hunger or the nexus of energy and the environment. We feel that this course could serve as a model for transformation of many of our general education science courses. We are sending a new team of faculty to SENCER in August 2014.

Research/Scholarly/Creative Activities

Over the past three or four years, the total research expenditures in the college have seen a steady decline, consistent with the national decline of success rates at federal grant agencies. Nevertheless, the faculty in the college remain leaders in the university in obtaining competitive, full-overhead-bearing grants from agencies such as NSF and NIH. Our faculty continue to lead major NIH-COBRE efforts. Two of these grants are continuing and we have a third submitted COBRE grant which has received very competitive scientific reviews. In addition, as noted in the individual department reports, this has been a very good year for new grant awards. Particularly noteworthy is the large number of new grants that were awarded to junior faculty (pre-tenure and recently tenured). Also noteworthy is the number of large, interdisciplinary, multi-college grant-writing efforts in which our faculty members have been engaged, very frequently with a high degree of success. Our faculty also continue to publish at a prodigious rate and obtain local, national, and international recognition for their work. The 25% increase in post-docs in the college for FY15 should lead to a further increase in publication productivity and more likely than not also an increase in successful grant applications.

Service/Outreach/Extension

As indicated by the departmental reports, our faculty continue to engage in a multitude of service and outreach activities, including university, professional, and community service. Taken together, these efforts are substantial and exceptional. In addition to the service/outreach performed by faculty in the college’s departments and enumerated in the individual reports below, the Dean’s Office also contributed substantial service. Dean Wood served his fourth and final year as a member of the Earth Sciences Evaluation Group for the Discovery Grant Program of the Natural Sciences and Engineering Research Council of Canada. He also served on university *ad hoc* committees dealing with Retention and DFW rates and the Steering Committee for the university’s G2C efforts. Dr. Jeff Boyer, Assistant Professor of Practice assigned to the Dean’s Office, served as the Director of the North Dakota State Governor’s School and on several college and university committees, including the University Assessment Committee.

College Goals and Priorities for the Coming Year

- 1) *Develop a new, three-year strategic plan with vision statement, hopefully in the context of a university-wide strategic plan.*
- 2) *Continue to work towards solutions for major budget gaps in the college including faculty lines not supported by appropriated funding and funds required to accommodate enrollment growth (extra-section funding).*
- 3) *Increase support for Teaching Assistants throughout college. This includes increasing the amount*

- of each stipend to market value and increasing the number of stipends in key areas.*
- 4) *Increase the number of state-appropriated tenure-track faculty appointments in key areas.*
 - 5) *Increase the quality and quantity of research and instructional space in the college.*
 - 6) *Increase the overall number of post-docs in the college.*
 - 7) *Continue to work towards diversification of student body, faculty and staff, with special effort towards advancing women and other underrepresented groups through the academic ranks and into administrative positions.*
 - 8) *Increase applications and admissions of PhD students (note: this requires significant progress on goals 2, 3, 4 and 5.*
 - 9) *Complete the Implementation of an Active Learning Lab or Math Emporium Model for instruction in Math 103, 105, and 107.*
 - 10) *Increase the level of development activity in the college. Specifically, work towards doubling the dollar amount of annual giving and raising funds for specific projects.*
 - 11) *Work to identify additional sources of funding for competitive start-up packages.*
 - 12) *Assuming some degree of success in Goals 2-6 and 11, increase the number of publications, grants awarded, and doctoral students completed.*

Research, Scholarly, and Creative Activities*

		Total
Peer Reviewed Publications (published or accepted)		467
National or International Invited Presentations		322
Research Grants and Contracts	Cumulative Amount: \$17,613,302	

*These represent a simple summation of the totals reported by individual units. No attempt has been made to correct for papers, presentations, or grants shared across multiple departments nor to add grants for which the PI is in another college.

Annual Report Fiscal Year July 1, 2013- June 30, 2014
Department of Biological Sciences

Department of Biological Sciences Goals and Priorities for FY13-14

This past year the department consisted of 18 tenured and tenure-track faculty, two assistant professors of practice, one research assistant professor, two full-time lecturers, 1.5 professional advisors, 3.25 full time support staff and 48 graduate students. We had considerable change in personnel in the department with Heidinger and Murphy joining the department, Sheridan retiring in March, and turnover in our professional advisors, departmental secretary and account technician. Collectively, the efforts of the staff and faculty minimized the impacts of these changes on our students and maintained our positive forward trajectory of the department. Greenlee and Travers were successfully promoted to Associate Professor and tenured, and Jacob was promoted to Associate Research Professor. We served approximately 520 undergraduate majors (plus ~75 minors) in the department and an additional 150 life sciences majors participating in interdisciplinary or other life sciences programs (i.e. NRM, Biotechnology, Plant Sciences). Our teaching programs generated 18,526 student credit hours.

Specific goals for FY13-14: Public relations. Establish an external advisory committee to help connect our alumni with our current student body. Start sharing departmental news through social media. *Assessment.* Create a robust assessment plan to evaluate our courses, curriculum and degree programs that is informed by the national conversations regarding biology education. *Online education.* Develop new online courses that are exemplary or on their way to becoming exemplary. *Recruitment.* Increase efforts to recruit high quality undergraduate and graduate students into our degree programs.

Executive Summary of Accomplishments for FY13-14

Teaching. The Department of Biological Sciences continues to be a campus leader for innovative STEM teaching. We are committed to meeting the national call for approaches to teaching biology that are novel, effective, and based on STEM education research. We continue to provide opportunities for faculty training and currently over 70% of our faculty (Bowsher, Clark, Dochtermann, Gillam, Greives, Heidinger, Hodgson, Travers, Momsen, Montplaisir, Offerdahl, Reed, Reindl) have participated in the HHMI Summer Institute on Life Science Education and are National Academy of Sciences Education Fellows in the Life Sciences. This past year Reed was on the College of Science and Mathematics team that attended the Science Education for New Civic Engagements and Responsibilities (SENCEER; www.sencer.net) symposia, which provided training to improve opportunities for service learning in courses. The department became a founding and active member of the Midwest/Great Plains regional Partnership for Undergraduate Life Science Education Network (PULSE: www.pulsecommunity.org), and Reed, Momsen and Hodgson attended the regional PULSE workshop in June. NDSU is a Founding Institution for the Gardner Institute's Gateways to Completion Initiative and instructors engaged in our Human Anatomy and Physiology series (BIO 220, 221, and labs) are participating in this initiative. Montplaisir, Kenyon, Asplin and three of our Ph.D. candidates initiated a learning community to revise our Human A&P courses and laboratories. We supported 24 undergraduate Learning Assistants in our courses, which helped facilitate increased student contact with instructors.

Research. The department continues to develop and grow the research potential of faculty at all levels. We averaged ~2.5 publications per faculty member, and grant-writing activities brought in funds to support research and education from national, regional and local agencies as well as private foundations and NGOs. The department had over \$9.31M in active grants and contracts this past year, of which \$1.35M was from new grants awarded to faculty members. Notable among the new grants are significant NSF research grants to Greives and Momsen. We engaged in several programmatic grants to provide enhanced educational and research opportunities for our graduate and undergraduate students (i.e. REUs, HHMI, COBRE, DoEd etc.). We view these initiatives as a critical part of growing our research portfolio. Research in the department is being published in top tier journals and departmental research programs are being featured in the media both regionally and nationally. Investment in research

infrastructure included hiring a technician to help train graduate and undergraduate students in genetic/genomic/molecular techniques (to start July 1, 2014), continued support of the departmental grant writer/coordinator, and renovation of outdated space into contemporary research labs. Critical to our research programs is the ability to recruit and retain high quality graduate students. We completed a self-study of our Graduate Student Teaching Assistantship (GTA) funding to evaluate current status of our GTA levels relative to our peers as well as assess our future needs. The study indicates that 1) our current GTA stipends are the lowest among our peers at 70% of the peer average, and 2) we are facing a significant deficit in GTA funding to meet student demand for our laboratory courses in the coming years. We have initiated conversations with the Deans of the Graduate School and College of Science & Mathematics to address these issues, but will need to move this forward in the coming year.

		Total
Peer Reviewed Publications (Published and Accepted/In Press since July 1, 2013)		47
National and International Presentations		82
New Grants and Contracts Awarded July 2013-June 2014	Cumulative amount: \$1,354,470	21

Service. The department provides strong leadership in service across the university and in professional organizations. Outstanding service within the institution included the following 1) Clark and Gillam were faculty senators, 2) Sheridan was Associate Dean of the Graduate School and Director of the CMB interdisciplinary graduate program, 3) Clark served on the College PTE committee, and 4) Montplaisir served on the University Academic Affairs committee. Otte, Sheridan, Reed, Momsen and Dochtermann serve as editors/associate editors of their professional peer reviewed journals. Faculty members have engaged the public through service and outreach such as Greives' public talk to the local Audubon chapter, Otte's service on the ND State Department of Public Instruction K-12 Science Standards Committee, and Stockwell's appointment on the Red River Zoo Board of Directors.

Success in meeting Specific Goals for FY13-14

Public Relations: We conducted extensive conversations with technology services on campus to develop our website. At this time it is clear that the resources for web development through ITS are not adequate for our needs and we are pursuing external consultant to develop our web and social media presence.

Assessment: We conducted a survey of faculty members to identify key concepts and skills expected of our graduates and started a curriculum alignment exercise to evaluate strengths and weaknesses in our current program's ability to meet our expectations of student learning outcomes.

Online Education: We now offer all of our non-majors level courses in an online format and our introductory biology series to an online format so that we can offer these high-demand courses either face-to-face or online every semester.

Clark has developed two of his upper division courses in an online format. *Recruitment:* We hosted a graduate student recruitment weekend for 12 prospective graduate students, 10 new graduate students are joining the program this coming academic year. We have also started conversations with the admissions office and financial aid office to develop a grant to recruit underrepresented minority undergraduate students into our programs.

Department of Biological Sciences Goals and Priorities for FY14-15

The department goals for the coming year include 1) *Faculty development.* Initiate a leadership program for associate professors in the department. 2) *Assessment.* Continue to develop a robust assessment plan to evaluate our courses, curriculum and degree programs that is informed by the national conversations regarding biology education. 3) *Online education.* Work towards the development of an online professional certificate in Wildlife Biology. This will require seed funding for a professor of practice to develop 5 or more on-line graduate-level courses. 4) *Recruitment.* Complete a search for a new faculty member in the department, use pro-active approaches to recruit a diverse applicant pool. 5) *Graduate Student Funding.* Aggressively pursue new funding for our GTA funding pool.

Department of Chemistry and Biochemistry
Annual report – 2013-2014

A. Department Goals and Priorities for the Past Year

- 1. Faculty Positions:** Hire replacement for Kose line.
- 2. Instructional Staff:** Increase permanent funding for TA positions, secure a new Professor of Practice position for organic chemistry.
- 3. Space:** Secure research space for cramped biochemistry faculty in IACC.
- 4. Strategic Planning:** Complete 5- and 10-year strategic plans.
- 5. Faculty Development and Morale:** Mentor junior faculty for promotion and tenure, provide resources for faculty travel and seminars, establish regular informal mentoring/social interactions.
- 6. Graduate Students:** Increase number of graduate students, initiate international exchange/degree collaborations.
- 7. Undergraduate Students:** A goal this year is to revamp, and restart our Undergraduate Research Mentorship program for undergraduate researchers.
- 8. Alumni Outreach:** Publish newsletter and increase alumni contacts through specific events. Develop department LinkedIn site for alumni connectivity.

B. Accomplishments

a. Teaching

- Demand for service courses and labs in general chemistry, organic chemistry and biochemistry remained at record levels. Enrollment for FY14: gen chem, 3,085; org chem, 587; bioc, 812; gen chem labs, 1,9672; org/bioc chem labs, 452. In total the department ran 127 laboratory sections. This is double the service teaching demands from ten years ago with fewer chemistry faculty and no increase in TA funding. This demand was met however pressure for teaching has resulted in cancellation of the trailer section of CHEM 341 in spring semesters.
- CHEM 121/122 DCE courses continue to improve and are successful.
- The Department is participating in the Gateways to Completion program for CHEM 121.
- The Department has committed additional TA staff and learning assistants for large lectures.
- TA training improved and all current laboratories are monitored for safety.
- Initiated a new general science course, UNIV 151, taught by Kent Rodgers.
- Faculty continue to garner accolades and awards for teaching efforts.

b. Research/Scholarly/Creative Activities (tabulate totals)

- In addition to the tabulated numbers below, faculty have filed 1 patent, published 6 books/book chapters, published several reviews.
- Faculty have obtained 11 new grant awards in the past year totaling \$2,388,417 total budget.
- A total of 12 active external grants with a total budget of \$5,335,078.
- 32 Proposals submitted totaling \$15,909,843 in funds requested.
- Numerous students have also presented conference abstracts not reflected in the totals below. Several students have won travel awards to attend national conferences. Several faculty won college/university and international teaching and research awards.

c. Service/Outreach/Extension

- NSF REU research program is in its 3rd year.
- PICNICS program for high school students expanded to include West Fargo high school.
- Governors school and Nature students hosted.
- Department faculty continue to lead in interdepartment, intercollege and interuniversity proposals (e.g. COBRE proposal, ND EPSCoR)
- Graduate visitation day continues to grow and has resulted in several new graduate students applying and being accepted.
- Faculty continue to make international connections (Bulgaria, France, China, India).
- Several faculty and graduate students contribute to Science Olympiad.
- Several faculty lead national committees for ACS and organize conferences.
- Nearly all faculty in the department have participated in FORWARD training and have become allies/advocates.

d. Other

- Held monthly faculty mentoring sessions at the Alumni Center for casual discussion of topics.
- Dr. John Wilkinson, new hire in Biochemistry, was successfully started up and in full operation.
- Graduate student enrollment remains at record levels.
- Graduate Students present summer research brown bag seminars for the third year.
- Awards: Sibi – Chamber of Commerce Award; Jayaraman – Peltier Award, ACS Young Investigator Award; Kilina – Sloan Fellow; Haring – NSF Career Award.
- Kose replacement was delayed for one year due to uncertain budgets.
- The former Dorsam lab in QBB was restored to the department.

C. Department/Unit/College Goals and Priorities for the Coming Year

- 1. Faculty Positions:** Kose replacement with analytical chemist, Kilin spousal hire, fully fund faculty salary deficits.
- 2. Instructional Staff:** Increase permanent funding for TA positions, secure professor of practice positions for general and organic chemistry.
- 3. Space:** Work with administration to facilitate upcoming legislative request for Dunbar Hall.
- 4. Strategic Planning:** Complete 5- and 10-year strategic plans.
- 5. Faculty Development and Morale:** *Mentor junior faculty for promotion and tenure, provide resources for faculty travel and seminars, continue regular informal mentoring/social interactions.* More informal events will be planned to increase interaction amongst faculty. Number of publications is slipping. A goal is to encourage a doubling of publications in the coming academic year. Continue to provide resources for faculty to meet program officers.
- 6. Graduate Students:** Improve TA training and student development.
- 7. Undergraduate Students:** Continued goal to revamp, and restart our Undergraduate Research Mentorship program for undergraduate researchers.
- 8. Alumni Outreach:** Publish newsletter and increase alumni contacts through specific

events.

Research, Scholarly, and Creative Activities

		Total
Peer Reviewed Publications (published or accepted 2012)		56
National or International Invited Presentations		65
Juried presentations/performances/exhibitions		90
Research Grants and Contracts *research expenditures	Cumulative Amount:	\$2,496,024

*annual research expenditure data is preliminary – not all data sources were available for this report.

Fiscal Year: July 1, 2013 - June 30, 2014
Coatings and Polymeric Materials

*Note: The Academic Annual Report format has been redesigned to make it less cumbersome and more efficient. **Each department/unit report should not exceed two pages in length.***

COLLEGES/DEPARTMENTS/UNITS REPORTS (Due to College July 15, 2014)

- A. Department/Unit/College Goals and Priorities for the Past Year
- a. Obtain funding to fill FY2014 faculty salary shortfall
 - b. Obtain full appropriated funding of tenured/tenure track faculty lines
 - c. Complete the process of rationalization of graduate courses
 - d. Conduct a strategic planning activity in Fall 2013
 - e. Conduct search for replacement for Vicki Gelling position
 - f. Implement 4+1 M.S. degree
- B. Provide Executive Summary of Accomplishments in Achieving the Goals and Priorities for this Past Year which include the following areas:
- a. Teaching
 - Department-wide SROI scores continue to be consistently high
 - Implementation of 4+1 M.S. degree program being developed in cooperation with the registrar and Dean of Graduate Studies
 - Awarded graduate-level scholarships from Valspar
 - b. Research/Scholarly/Creative Activities (tabulate totals)
 - See table below (does not include Eric Hobbie)
 - c. Service/Outreach/Extension
 - Professional Service
Scientific Organizing Committee, Coatings Science International Conference: Croll, Webster
International Scientific & Advisory Board: 10th International Conference on Composite Science and Technology, 2015 Lisbon, Portugal: Croll
Organizing Engineering at Biointerfaces symposium and scientific committee member at 5th International Conference on Nanotechnology: Fundamentals and Applications in Prague (Czech Republic), August, 11-13, 2014: Voronov
Progress in Organic Coatings: Editor in chief: Webster
Editor in chief emeritus: Bierwagen
Editorial board: Croll
Journal of Coatings Research, Editorial Board: Croll
ISRN Polymer Science Journal, Editorial Board: Voronov
International Journal on Theoretical & Appl. Nanotech., Ed. Board: Voronov
Recent Patents in Corrosion Science, Editorial Board: Gelling

Councilor, American Chemical Society: Webster
 Member-at-large, PMSE Division American Chemical Society: Gelling
 Chemical Coaters Association Board of Directors: Gelling
 Red River Valley Research Corridor Board of Directors: Gelling
 Faculty are proposal reviewers for numerous agencies (NSF (plus panel), DOE, USDA) and journal article reviewers for numerous scientific journals.
 Invited external short course presentations
 European Coatings Conference: Croll
 Benjamin Moore: Webster, Croll
 American Coatings Conference: Bierwagen, Webster

- Outreach
 Department hosted 1 Governor's School student, 1 PICNICS student and 4 summer undergraduates.
 Provided department tours for NATURE and other programs.
 "Expanding Your Horizons" laboratory session for middle school girls (Gelling), one of the highest ranked sessions in the program.
 Numerous ad hoc discussions with area people and businesses on paints, materials, and other issues.

C. Department/Unit/College Goals and Priorities for the Coming Year

- Develop proposal for color science educational track for B.S. and M.S. degrees
- Hire replacement faculty to Vicki Gelling
- Hire Lab Manager (replace Heidi Docktor)
- Publish newsletter
- Engage in fund-raising activities

Research, Scholarly, and Creative Activities

		Total
Peer Reviewed Publications (published or accepted)		36
National or International Invited Presentations		17
Juried presentations/performances/exhibitions		0
Research Grants and Contracts	Cumulative Amount: \$6,277,826	24

(Brian M. Slator, Department Head)

It is the “Golden Age” of Computer Science at North Dakota State University. We have a University Distinguished Professor (William Perrizo), a Meier Junior Professor (Anne Denton), an NSF Career Award winner (Hyunsook Do), and now a Jefferson Science Fellow (Ken Nygard). This last is a highly prestigious appointment to a year in Washington, DC at the U.S. State Department – only a handful of scientists are chosen each year.

In the past year research grants have come from the National Science Foundation (Anne Denton & Changhui Yan), Honeywell (Ken Magel), Cisco Systems (Juan Li), and the CS department won the highly coveted NDSU Advance/FORWARD Department Equity Award with a \$5,000 prize.

A. Department Goals for 2013-14:

- a. Carefully assess the new courses in our curriculum for positive outcomes
Our new required courses in the undergraduate programs are CSci 213, 313, and 415. All three courses were adjusted this year to provide more software development experiences. We need to continue to work with our tutors and others to ensure that students actually do the assignment work they submit. Unfortunately, a significant fraction (about 25% according to the course instructors) continue to try to avoid the actual work and learn little in these courses. We have gone to a system of new assignments every semester, and a careful check of the Internet to develop assignments whose solutions are not easily retrieved.
- b. Increase the number of faculty participating in externally funded research
We have increased the number of faculty actively participating in new or continuing research grants from nine last year to eleven this year. We have formed several informal faculty and graduate student research groups involving faculty with grants and some faculty without grants to try to continue to expand this number.
- c. Continue to realign our graduate programs towards more Ph.D. and fewer M.S. students
We divide our graduate admissions into three groups: the M.S. degrees in Computer Science and in Software Engineering; the Ph.D. degrees in Computer Science and in Software Engineering; and the Master of Software Engineering and Graduate Certificate in Software Engineering. The last group does not involve any research component. The number of students admitted to the first group has declined by seven percent. The number of students admitted to the second group has increased by four percent. The number of students admitted to the third group has increased by nine percent. However, we believe these results fit our goal because the faculty load continues to shift from mentoring M.S. research to mentoring Ph.D. research.

- d. Continue efforts to recruit more female undergraduate major students. Continue to expand our efforts to recruit students from other under-represented groups. It is still too early to expect significant results from our continued efforts to use national and regional efforts to increase our students from under-represented groups including women. The efforts of Simone Ludwig, one of our tenure-track faculty, and Joan Krush, our academic advisor, to attract female students were noteworthy this year.

B. Accomplishments

a. Teaching

i. Changes

1. CSci 415 was taught for the first time this year;
2. A graduate course in cloud computing was introduced.

ii. Progress

1. A record number of M.S. and Ph.D. graduates occurred this year.;
2. The M.S.E. program graduated seven students this year;
3. A joint B.S. degree with Statistics is almost ready to be submitted for University and NDUS approval;
4. We now are assessing our preliminary and final Ph.D. and M.S. examinations with a survey filled out by every member of each examining committee.
5. We have completed the transition to our new B.S. and B.A. curricula;
6. The comprehensive and qualifier examinations in Software Engineering were changed significantly.

iii. New Initiatives

1. We started to develop an M.S. in Data Analytics (Big Data) with the Statistics Department;
2. We formed faculty-graduate student research groups involving faculty with grants and faculty without current grants.

Research/Scholarly /Creative Activities

The Department of Computer Science carried over fourteen research grants awarded to seven faculty for a total of \$1,236,092. In the last year, nine new awards were made to seven faculty for \$922,415. Both are significant increases over the previous year resulting in a near doubling of external funding in just one year.

The sixteen active member of the Department published 77 refereed publications for an average of 4.8 per faculty member. Fifteen of the sixteen faculty published three or more times.

Peer Reviewed Publications (published or accepted)	77
National or International Invited Presentations	29
Juried presentations/performances/exhibitions	0
Research grants and Contracts	\$2,158,507

Service/Outreach/Extension

Each tenured faculty member serves on committees for the department, college, and university. Tenure-track faculty are encouraged to pursue research in preference to service to the institution. The sixteen faculty have 56 department committee memberships, nine college committee members, and 12 university committee memberships. Faculty performed 148 instances of service to the profession (conference organizing, editorial or program committees, publication refereeing, or grant refereeing).

C. Department/Unit/College Goals and Priorities for the Coming Year

- a. Submit the joint B.S. degree with Statistics for University and NDUS approval;
- b. Complete development of a Data Analytics (Big Data) M.S. degree jointly with the Department of Statistics;
- c. Align our undergraduate assessment efforts with the CULE requirements of the University Assessment Committee;
- d. Continue efforts to increase the number of faculty participating in externally funded research
- e. Continue to realign our graduate programs towards more Ph.D. and fewer M.S. admissions;
- f. Continue and expand our efforts to recruit undergraduate students from under-represented groups.

ANNUAL REPORT
Fiscal Year: July 1, 2013-June 30, 2014
NDSU, Center for Science and Mathematics Education
Doğan Çömez

Center for Science and Mathematics Mission Statement

The mission of the Center for Science and Mathematics Education is to

- provide an infrastructure for the operation of multiple science and mathematics education projects
- promote collaboration with other North Dakota institutions to implement a statewide plan for the improvement of undergraduate teacher preparation and graduate professional development for science and mathematics teachers
- provide opportunities for faculty and students to become involved in K-16 science and mathematics education projects, and
- support the ongoing efforts of individuals, departments, and groups of faculty involved with K-12 activities such as science fairs, Governor's School, Science Olympiad, math contests, and other science/math functions.

Other: The CSME administratively houses:

- NDSU FORWARD
- The North Dakota Governor's Schools
- The North Dakota State Science Olympiad (statewide administration, plus annual state final competition)
- The Southeast North Dakota Science & Engineering Fair
- GraSUS
- SBIR subcontracts for STEM education-related research (WoWiWe Instruction Co., etc.)
- Various STEM scholarship programs in support of NDSU undergraduates (McCarthy Scholarships, Hinsz Scholarships)

A. Center Goals and Priorities for the Past Year

Continue the existing programs in service and outreach.

Continue to develop collaborations among NDSU faculty, for externally-funded projects focused on STEM education.

Work toward transition in the directorship of the CSME (Dr. Schwert retired from this role on June 30, 2013, and Dr. Çömez resumed the duties of the Director for the Center for one year term.)

B. Accomplishments:

Teaching: The CSME has no direct responsibility in instruction.

Research/Scholarly Activities: The following are the list of externally-funded projects operated through the CSME:

- NIH Health 2R44RR024779-02A1, subcontract from WoWiWe Instruction Co. (NDSU subcontract). \$369,276. (March 1, 2011 – February 28, 2013; continued till mid-Fall 2013).
- NIH, North Dakota IDeA Network for Biomedical Research Excellence. PI, NDSU subcontract: \$2,692,122. (May 1, 2009 – April 30, 2014).
- NSF HRD-0811239, Advance. NDSU FORWARD: Transforming a gendered institution. \$3,736,873. (September 1, 2008 – August 31, 2013; continuing till Fall 2015).
- North Dakota Department of Public Instruction, ND Governor's School: \$230,000/yr + foundation aid (TBD annually).
- GraSUS: \$95,400/yr (funded by Fargo Public Schools; West Fargo Public Schools).

Service:

- Southeast North Dakota Science & Engineering Fair, March 2014. ≈200 grades 7-12 students, plus coaches, parents, families.
- North Dakota State Science Olympiad, April 2014. ≈450 grades 7-12 students, plus coaches, parents, families.
- North Dakota Governor's School, Summer, 2013. 76 students completed 6-week residential program. Currently, 2014 North Dakota Governor's School is in session.
- GraSUS. Funded by local school districts, with NDSU STEM graduate and undergraduate students serving curricula development in grades 7-12 science and mathematics classrooms.
- FORWARD. Implement campus-wide programs for the advancement of women faculty (especially those in STEM), plus programs focused on improvements in campus climate.

Goals and Priorities for Coming Year:

- Continue our existing programs in service and outreach.
- Continue to develop collaborations among NDSU faculty, for externally-funded projects focused on STEM education.
- Complete the transition in the directorship of the CSME (Dr. Paul Kelter is named as the new director; he is taking over the directorship from interim Director Dr. Çömez).

**ANNUAL REPORT
DEPARTMENT OF GEOSCIENCES**

Fiscal Year: July 1, 2013 - June 30, 2014

- A. Department/Unit/College Goals and Priorities for the Past Year
1. Focus on development, including targeting inclusion of Geosciences Hall in the forthcoming NDSU capital campaign.
 2. In collaboration with Biological Sciences, develop a space use plan for Geosciences Hall.
 3. Work with department faculty to improve assessment activities.
 4. Initiate and complete searches for Sed/Strat/Paleo faculty (Ashworth replacement) and internal/external Chair.
 5. Focus on expansion of faculty lines (minimum of three) to allow establishment of a small, but first-rate graduate program in Geology. This is directly aligned with goals/plan presented in the highly-ranked, 2011-12 Academic Roadmap proposal for the department.
- B. Provide Executive Summary of Accomplishments in Achieving the Goals and Priorities for this Past Year which include the following areas:
- Goal 1 – attempted but not successful; Goal 2 – achieved; Goal 3 – ongoing; Goal 4 – Sed/Strat/Paleo faculty recruitment achieved; internal/external Chair not achieved; Goal 5 – ongoing.
- a. Teaching
- With support from NDSU-DCE, the Department launched its first initiatives into distance teaching, with the initial thrust being in Geography. Dr. Debasree Chatterjee-Dawn developed and taught at a distance GEOG 151 and 161.
 - Dr. Stephanie Day was accepted into Learning Assistants program, wherein she will employ an LA as she modifies the curriculum in her GEOG 455/655 GIS course.
 - Dr. Kenneth Lepper continues modification of this GEOL 491 Seminar course (capstone) into one centered on developing professionalism and communication skills for upperclassmen majors.
 - The number of Geology majors is 47. The percentage of women undergraduate Geology majors remains at 34% (national average is 42%).
- b. Research/Scholarly/Creative Activities
- Stephanie Day began her appointment as Assistant Professor in August, 2012. Her specialties include remote sensing, drainage (especially agricultural), and bank erosion. She is PI of a \$118,000 subcontract from the Minnesota Pollution Control agency, for which she supervises one M.S. student, Girish Uprety. She is also PI of a \$30,000 NASA-EPSCoR grant to test the remote detection of archaeological landforms in both grassland and heavily-forested regions. In summer, 2013 Day joined Schwert on the 5-week geomorphological studies on Ofu, Manu'a where she has been applying various approaches of LiDAR analyses. Adam Lewis' work involves decoding Antarctic climate history. Kenneth Lepper continues his collaborative NSF-funded research with Lewis

on optical dating of surfaces in the McMurdo Dry Valleys, plus his on-going dating studies associated with the history of the Great Lakes; he is advisor to M.S. graduate student Meridith Ramsey. Donald Schwert is co-PI on an NSF grant funding archaeological/geomorphological studies of populations and land-use change in Manu'a, American Samoa. In 2013, he returned to the island of Ofu for a second, summer field season. Oduor's research is on contaminant fate and transport in porous media, and 3-D spatial modeling using GIS and numerical models for point and non-point contaminants in surficial and subsurface environments. He also carries out theoretical and experimental studies on geological and synthetic membranes. Bernhardt Saini-Eidukat is probing the potentially toxic mineral erionite in western North Dakota, plus characterizing airborne dust samples from the oil field region of western North Dakota; the latter research is supported, in part, by a subgrant from ND-INBRE. Ashworth is investigating paleontological samples from Antarctica. Tabulated publication totals are presented in the table below.

Research, Scholarly, and Creative Activities

		Total
Peer Reviewed Publications (published or accepted)		12
National or International Invited Presentations		21
Juried presentations/performances/exhibitions		0
Research Grants and Contracts	Cumulative Amount: \$1,558,058	7

c. Service/Outreach/Extension

- All Geosciences faculty are heavily invested in community, regional, and state outreach via multiple modalities. These include invited public lectures, school visit, responding to citizen inquiries on rocks, minerals, and fossils, and appearing in national/international media.
- Faculty serve as advisors to city leaders for land use planning and maintain web sites for public information Research Grants and Contracts (total number and cumulative amount)
- Faculty serve scholarly societies and funding agencies as referees and reviewers of scholarly work and proposals. They organize and chair sessions at regional, national and international scientific meetings.
- Faculty serve on a variety of departmental, college, and university committees.

C. Department/Unit/College Goals and Priorities for the Coming Year

1. Continue initiatives into distance education through formalizing an appointment for Dr. Chatterjee-Dawn as an Assistant Professor of Practice.
2. Initiate and complete the search for an internal/external Chair.
3. Work with department faculty to improve assessment activities.
4. Focus on expansion of faculty lines (minimum of three) to allow establishment of a small, but first-rate graduate program in Geology. This is directly aligned with goals/plan presented in the 2011-12 Academic Roadmap proposal for the department.

**North Dakota State University
Department of Mathematics
Annual Report 2013/2014**

A. Department Goals and Priorities for the Past Year

- a. Complete the Remedial Math Program overhaul (including the Math Emporium model)
- b. Complete faculty search successfully

B. Executive Summary of Accomplishments

a. Teaching

- Continued development of Math Emporium for Math 103, 105, and 107. Facilities have been identified/remodeled and preliminary purchases of equipment have taken place. A detailed MOU with commitments at all levels has been distributed.
- Completed development of learning outcomes for the mathematics major.
- Revisions to the undergraduate curriculum continue to be discussed with aims to begin implementation in Fall 2015 with a new focus on “bridge” courses for undergraduate majors. Course plans have been developed for two new courses and ongoing discussion of other curricular changes in ongoing.
- New (locally funded) position (Associate Chair) with a focus on professional development for faculty and graduate students.
- Reorganization of lecturers/TAs which allows increase in TA stipends to \$14,000.

b. Research

- Significant increase in peer reviewed publications from previous year (from 38 to 51).
- \$17,735,000 in new grant proposals with PI or Co-PI in the Department during fiscal year (represents 15 unique submissions).
- Two new successful faculty hires to strengthen Algebra group and Geometry/Topology group.
- One new postdoctoral hire and one new visiting assistant professor hire to strengthen department research.

		Total
Peer reviewed publications (published or accepted) Published: 21 Accepted for publication: 30		51
National or International invited presentations National: 23 International: 9		32
Juried presentations/performances/exhibitions		N/A
Research Grants and Contracts NSA (Sather-Wagstaff, continuing): \$51K Simons Foundation (Dorfmeister, continuing): \$35K ND-NASA-EPSCoR (SenGupta, continuing): \$8K NSF-EPSCoR Start-up (Comez, continuing): \$16K NSF-DMS (Alfonseca, continuing): \$62K ND-DPI (Comez, continuing): \$130K NSF-EPSCoR Start-up (Comez, continuing): \$60K	Cumulative Amount: \$457K	8

Fargo/West Fargo (for GRASUS; Comez, continuing): \$95K		
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c. Service/Outreach

- Completed revision of Department PTE Policy.
- Successful Sonya Kovalevsky Day for High School Girls interested in Mathematics.
- Department hosted Math-In Study Session (over 200+ students each semester) before finals week.
- Continued involvement in Governor's School.
- Continued hosting of the Mathematics Genealogy Project.
- NDSU is represented by the department with membership on 7 Journal editorial boards.
- 9 faculty members completed reviews of mathematics papers for AMS Math Reviews and/or Zentralblatt Math.
- 12 Department faculty members are FORWARD Advocates or Allies.

C. Department Goals and Priorities for the Coming Year

- Complete planning of Math Emporium with preparations to begin service in Fall 2015.
- Complete review of undergraduate major curriculum with proposals submitted to Academic Affairs for review.
- Begin review of Math 104 and Math 146 with an eye toward meeting needs of client departments and needs of general education.
- Faculty development workshop on "Working with TAs".
- Continued focus on decrease in teaching loads for research active faculty.
- Increase visibility of Colloquium series (including devoting resources to strengthen the quality of talks).
- Complete faculty search successfully.
- Recruit (10+ students) an incoming class of graduate students to meet needs of new Math Emporium.
- Continue planning and hosting of MAA meeting for Fall 2014 and AMS meeting for Spring 2016.

Annual Report of Physics Department
Fiscal Year: July 1, 2013 - June 30, 2014

A. Department Goals and Priorities for the Past Year:

- Emphasis on incorporation of undergraduate students into research projects.
- Provide a room equipped with computers and lounging area for exclusive use of undergraduate students.
- Hire experimental physicist following the retirement of previous Head, Dan Kroll.
- Utilize undergraduate Learning Assistants (LAs) to facilitate engagement in large introductory calculus-based physics courses

B. Executive Summary of Accomplishments in Achieving Goals/Priorities for Past Year:

a. **Teaching/Instruction**

- PHYS 171 “Introductory Projects in Physics” for freshman was taught for the first time in Fall 13 (instructor: Andrew Croll); course aims at increasing retention rates of physics undergraduates by developing a cohort of incoming freshman.
- PHYS 220 “Physics for Designers and Architecture Students” was taught for the first time by in Fall 13 (instructor: Orv Swenson); course addresses specifically the needs of students from NDSU's Architecture program.
- Number of graduate TA's increases from 3 to 4 through support from Dean of Graduate School. TA's can now cover 24 out of 50 annual lab sections.
- Double Major in Physics and Computer Science was implemented in Fall 13 and has started to attract the first students.
- LA's were utilized in 3 courses.

b. **Research/Scholarly/Creative Activities**

- 8 grants with PIs from our Department were active during the academic year; the total amount of these awards is \$2,200,000.
- 34 peer-reviewed publications by 10 research active faculty (24 publications are listed for 2013 and 11 until June 2014 in the *Web of Science*).
- 10 national or international invited peer-reviewed presentations.
- Hired new faculty member in experimental biophysics (Yongki Choi); startup of \$400,000 includes a \$150,000 New Faculty Start-Up grant from ND EPSCoR.

c. **Service/Outreach/Extension**

- Annual Student Poster Session (organized by Warren Christensen) had participation of physics students from NDSU, UND, MSUM, and Winona State.
- Department hosted visit from Darrell F. Strobel, the 2014 Henry L. Bolley Academic Achievement Award recipient of NDSU's Alumni Association.
- Facilitated by Warren Christensen and SPS students, SE room 108 has been turned into a Student Lounge, providing a social/learning space for our majors.
- Alexander Wagner has been a member of the Scientific Organizing committee of the Discrete Simulation of Fluid Dynamics (DSFD) conference since 2007 and

Chair of this committee since 2008.

- Alan Denton organized another Science Fun Night at Longfellow Elementary School. This outreach activity was also incorporated into Introductory Physics Recitations, PHYS 252R/251R.
- In summer 2013, Joe Koteles, a recent NDSU graduate, who is currently teaching at Grafton High School (Grafton, ND), brought 11 students to the Department of Physics for science activities.
- Several faculty members developed and facilitated events at the Science Olympiad and Science Fairs. Landon Bladow was judging co-chair for the SE Regional Science & Engineering Fair and judging chair of the ND State Science & Engineering Fair.
- Several faculty (Alan Denton, Andrew Croll) were involved in mentoring students through the ND-EPSCoR Nature Summer Camp and Governor's School
- Alexander Wagner is Associate Editor of "Physical Review E".
- Daniel Kroll is a member of the editorial board of "Physical Review E" and Sylvio May of Elsevier's book series "Advances in Planar Lipid Bilayers and Liposomes" and of "Chemistry and Physics of Lipids".
- Warren Christensen is Chair of the American Association of Physics Teachers' (AAPT) committee on Research in Physics Education.

C. Department Goals and Priorities for the Coming Year

- Further growth of graduate student body.
- Continue to engage undergraduate students in research projects.
- Implementation of recitation sections for *all* students in Phys 251 "University Physics I".
- Renovation of office suite 318 (3rd floor of South Engineering) to provide additional office space for graduate students, faculty, postdoctoral associates, and visitors.
- Perform national search for Assistant Professor of Practice.
- Incorporate previous Provost Bruce Rafert and Yongki Choi into the Department.
- Continue discussions toward defining Student Learning Activities, including the specification of program learning outcomes and assessment of student activities.
- Organize Annual Student Poster Session alternating between UND and NDSU.
- Resume participation in the University Physics Competition.
- Continue to improve web-presentation of the Department.

Research, Scholarly, and Creative Activities

		Total
Peer Reviewed Publications (published or accepted)		34
National or International Invited Presentations		10
Juried presentations/ performances/exhibitions		---
Research Grants and Contracts	AY 2013/14 expenditures	8
	\$431,908	

Department of Psychology Annual Report

Fiscal Year: July 1, 2013 - June 30, 2014

Prepared by James R. Council, Chair

A. Department Goals and Priorities for the Past Year

1. Improve funding for graduate students – in particular, increase *appropriated* funding and training grant funding – *our appropriated funding has not increased, and continues to be woefully inadequate*
2. Distribute department newsletter – *distributed by mail, email, and home page, September, 2013*
3. Hold reunion for former faculty and grad students in Spring, 2014 – *planning is well underway, with invitations sent and a number of RSVPs for 26-27 September 2014*
4. Continue to develop department Facebook page, generate “fan base” – *this has been done, see link on department home page*
5. Develop system for mentoring new faculty – *in progress – chair has met with new faculty for input*
6. Continue to keep committees on task (Faculty Affairs, Resources and Equipment, Undergraduate Student Affairs, Graduate Programs Committee) – *committees are functioning well; accomplishments include equitable space and resource allocations, revised grad student manual, and revisions in progress on department policies and procedures manual*
7. Work to assess and improve department climate, specifically regarding female faculty, students, and staff, and family friendliness – *chair has held discussions with faculty groups*
8. Continue to develop new doctoral program in Clinical Psychological Science – explore possibilities for training grant and creating joint positions with Neuropsychiatric Research Institute – *in progress – two students placed in paid RA positions; DCT Paul Rokke is developing/documenting program evidence necessary for accreditation*

B. Executive Summary of Accomplishments

Teaching. Department means on SROIs continue to exceed college and university means at all levels (e.g., *quality ratings*: 100-200 = 4.4 (vs. *college x.x* vs. *university 4.1*), 300-400 = 4.4 (vs. *4.1*), 600-700 = 4.5 (vs. *4.1*)). (Note: means are from last report. IRA does not have data for past academic year at time of writing.) The following courses were enhanced or developed:

- PSYC 212, Psych. Aspects of Drug Use and Abuse, online section developed and offered by Donohue
- PSYC 216, Cultural Psychology, online section developed and offered by Routledge
- PSYC 261, Introduction to Cognitive Psychology, developed by Thomas & Johnson for Fall 2014
- PSYC 340, Psychology in Sport – developed by Coleman as a distance class, for Fall 2014
- PSYC 450/650, Computational Methods in Experimental Psych/, developed by Balas, for Fall 2014

It should also be noted that the department is participating in the G2C project, with 6 faculty and one graduate student working to improve Psychology 111. At the program level, Hinsz has developed and received approval for a Minor in Managerial Psychology. McCaul is doing an excellent job teaching UNIV 189 and advising all of our freshman and sophomore majors. In addition, psychology faculty had 141 undergraduate students working in their labs, including 2 McNair scholars and 9 students conducting honors thesis research. Finally, Katie Gordon received the College of Science and Mathematics Award for Excellence in Teaching, 2013.

Research. Both publications and grant activity have increased over the past year.

	Total
Peer Reviewed Publications (published or accepted)	132

National or International Invited Presentations (includes peer-reviewed conference presentations)		55
Research Grants and Contracts	Cumulative Amount: \$2,380,417	15

Continued external funding: During FY14, the department COBRE award was \$1,419,854. In addition, the department received \$842,563 in direct costs from 10 grants which had been awarded previously. *New external funding:* during FY14, psychology faculty submitted 18 grant proposals for external funding, 5 were funded and 13 are currently under review.

New grant funding:

- Erin Conwell, NIH, \$299,999.00, “Learning Words with Multiple Meanings: Input and Processing in Childhood”
- Benjamin Balas, NSF, \$218,706.00, “The Development of Information Biases for Face Recognition”
- Robert Dvorak, NIH, \$395,150.00, “Response Inhibition Training in Smoking Cessation”
- Clay Routledge, John Templeton Foundation, \$173,858.00, “The Secret Religious Lives of Atheists: Existential Threat Motivated Supernatural Thinking Amongst Religious and Non-Religious Individuals”
- Clay Routledge, SSSR (Jack Shand Award), \$3,000.00, Religious Research

EPSCoR new faculty startup: two grants were active in FY14, totaling \$115,000 in expenditures. An EPSCoR Research Infrastructure and Partnership grant (Johnson) was funded for \$85,000, and an Advancing Science Excellence in ND grant (Irish) was funded for \$30,000 (with another \$30,000 for FY15). *Other research funding:* The department COBRE awarded internal grants to 2 faculty for a total of \$37,746.

Service. At the *college* level, faculty served on the following committees: Associate Dean Search Committee, Dean’s Advisory Committee, Nominations and Awards, PT&E (chair), Service and Outreach, Student Progress, Teaching and Professional Service, Technology Enhanced Science Education. **University** committees included: Academic Integrity, Advance FORWARD Subcommittee on Ally Training, Advisory Board to FORWARD Advocate and Ally program, Behavior Intervention Team, Council of College Faculties, Committee to Analyze Grades in GE Courses, Curriculum, Endowed Professorship, Equity and Diversity, Faculty Senate, Faculty Senate Special Review Committee, FORWARD Training for Search Committees, General Education, Grad Council, Homecoming, IRB, MCAT Task Force, Minard Hall Addition and Renovation, President’s Council on Alcohol and other Drugs, Program Review, revision of SROIs and Policy 332, Second Year Experience, Standing Committee on Faculty Rights, Teaching and Professional Service, United Way. K. Gordon and Donohue provide pro-bono services at the NDSU Counseling Center. Council presented on using Wikipedia projects in instructional tech workshop for university faculty. Most faculty participate in FORWARD/ALLY training/events, and three are Advocates, with Gordon and McCaul conducting training on this and other campuses. Other faculty advise student clubs, including Cycling, Psychology, Video Game, and Fencing (advised by a staff member). At the *professional* level, faculty reviewed hundreds of submissions for over 50 different journals. Four faculty serve as editors on 6 journals, and other faculty serve on another 8 editorial boards. A number served on committees for professional organizations. Faculty also reviewed numerous grant proposals for various federal agencies, including NIH, NSF, and NRC. Council represented the Council of Graduate Departments of Psychology at the APA Education Leadership Conference. Finally, Mark Nawrot organized a workshop on Bayesian statistical analysis that was very well attended by faculty from across NDSU and the region.

Many of our faculty also engage in significant **outreach and public service**. This includes judging Science Olympiad and Science Fair, and presenting at CSM Science Cafes. Routledge has a very popular

blog with Psychology Today and has been interviewed for a variety of print and other media, and is currently writing a trade book on nostalgia. K. Gordon did three talks to regional mental health professionals on suicide prevention. W. Gordon participated in an online global forum on bullying sponsored by the UN. Linda Langley gave 4 luncheon talks on brain health to state AARP chapters.

C. Department/Goals and Priorities for the Coming Year

1. Improve funding for graduate students – in particular, increase *appropriated* funding and seek out opportunities for training grants and other external funding (e.g., paid off-site RA positions)
2. Hold successful reunion for former faculty, grad students, and staff in September, 2014
3. Revise Department Policy and Procedures manual, in particular, update section on Promotion, Tenure, and evaluation
4. Organize professional development workshops for new faculty
5. Ongoing assessment and improvement (if needed) of department climate, specifically regarding female faculty, students, and staff, and family friendliness
8. Work toward accreditation of doctoral program in Clinical Psychological Science – explore possibilities for training grants and joint positions with NRI and Sanford Health
9. Develop collaborations with the NDSU Masters in Public Health Program
10. Develop collaborations with Sanford Health

Department of Statistics
Annual Report July 1, 2013-June 30, 2014

A. Department Goals and Priorities for the Past Year

1. Work with the Department of Computer Science and redo the Joint M.S. degree in Computer Science and Statistics. We would like to reduce the number of credits required for this degree from 45 hours to 30-32 hours and make it a non-thesis degree. This would be a degree based on large data analysis requiring both computer science and statistics courses. Students would support themselves.
2. Reduce the number of hours required for the M.S. degree in Applied Statistics from 32 to 30 hours by eliminating the consulting practicum.
3. Work with newer faculty in encouraging them to submit more grant proposals by helping them make more connections.

B. Executive Summary of Accomplishment in Achieving the Goals and Priorities for this past year

a. Teaching/Courses

We are in the process of updating the list of courses taught by the Department of Statistics. We have placed some of our courses on hiatus since we do not presently have faculty who want to teach them and/or who have expertise in the area. Three of these classes included multivariate theory, meta-analysis, and asymptotic and bootstrap. Bootstrapping is presently covered in "R". We have sent over the proposal for one new course on "Introduction to Geostatistics" which we are planning to offer in Fall 2015, if approved. We will also be sending over the proposal for a graduate course in "Statistical Genetics". We have faculty who do research in geostatistics and statistical genetics.

- Progress in successfully implementing past initiatives
 - We have been working with the Department of Computer Science on first proposing a joint B.S. degree. Students graduating with this joint B.S. degree would have the pre-requisites to continue on to the M.S. degree on Big Data Analysis. The M.S. degree on Big Data Analysis is still in the discussion stage with computer science. We should be submitting proposals for both of these degrees during this upcoming year.
 - We will be submitting a new proposal this year to eliminate the consulting practicum, but not reduce the number of hours required for the M.S. degree.
 - All the tenure-track assistant professors were involved in submitting at least one grant proposal to an outside funding agency this year as either the PI or Co-PI on the grant proposal.
- New Initiatives in teaching

Two of our Assistant Professors of Practice applied for Learning Assistants for the fall of 2014. They will be assessing student learning with and without the LAs.

The Department did develop learning assessment matrices for its undergraduate programs during this past year.

b. Research/Scholarly/Creative Activities

- Peer-Reviewed publications (published accepted)-**22**
- National or international invited peer-review presentations-**5**
- Other presentations – **6**
- Student Presentations at 4th RRV Conference – 16
- Student Poster Presentations at 4th RRV Conference-9
- Grant Proposals Submitted (as PI or Co-PI)-**8 (one was a pre-proposal)**

C. Department Goals and Priorities for the Coming Year

1. Continue to work with Computer Science to develop a joint BS degree in Computer Science and Statistics that would prepare students for a graduate degree in big data analysis. Propose Graduate degree in Big Data Analysis.
2. Continue to examine the current curriculum, weeding out courses that are less relevant/popular and thus freeing up faculty for either research or teaching newly proposed courses more relevant to their research areas.
3. Work on cultivating relationship with Sanford Health.
4. The Department of Statistics had 3 Ph.D. students graduate between May 2013 and May 2014, we would like to continue to work on graduating Ph.D. students.

Research, Scholarly, and Creative Activities	
Peer Reviewed Publications (published or accepted)	22
National or International Invited Presentations	5
Juried presentations/performances/exhibitions	6
Student Presentations at 4th RRV Conference	16
Student Poster Presentations at 4th RRV Conference	9
Grant Proposals Submitted (one was pre-proposal)	8