جامعة السلطان قابوس

Sultan Qaboos University

COLLEGE OF SCIENCE

ANNUAL PERFORMANCE REPORT

2010

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PREFACE[1]

The College Annual Performance Report (CAPR) encourages a strong focus on the strategic directions of the College on alignment with the University mission, objectives and strategic plan. The CAPR should be a succinct and evaluative document with an emphasis on strategic issues. It provides an opportunity for the College to integrate its reporting and planning activities given that one informs and strengthens the other. The CAPR includes sections on:

- Evaluation of College Strategy and Targets
- Quality and Standards including analysis of student performance
- Curriculum Planning
- Staffing Report
- Research and Consultancies
- Budget Report and Resource Requests
- Risk Management

The CAPR should be discussed and agreed by the College Board before submission to the University Administration not later than the **28th of February** of each year.

In summary, the production and reporting path is:

- College CAPR considered by College Board
- Colleges submit CAPR to the Vice-Chancellor.
- Vice Chancellor forwards CAPR to the three Deputy Vice Chancellors (DVCs) and the Director of Quality Assurance Office for first feedback.
- Colleges revise the CAPRs in the light of initial comments from the Vice-Chancellor, Deputy Vice-Chancellors and Director of Quality Assurance Office before its sub-sections are sent out for evaluation by relevant people and units.

The chapters are evaluated and summarized by Heads of the relevant academic units and offices and considered by appropriate University Committees as follows:

- **Chapter 1** (*Strategy and Targets*) of the CAPR is considered by the VC and the three DVCs.
- **Chapter 2** (*Quality and Standards*) is sent to the Director of QAO to prepare overview reports for discussion at the Academic Quality Assurance Committee. Subsequently, the reports (revised if necessary) are considered by the Senior Management Quality Assurance Committee.
- **Chapter 3** (*Curriculum Planning*) is sent to the DVC-AACS to prepare an overview report for discussion at the University Curriculum Committee. Subsequently, the report (revised if necessary) is considered by Academic Council.
- **Chapter 4** (*Research and Consultancy*) is sent to the DVC-PSR to prepare an overview report for discussion at the University Research Committee. Subsequently, the report (revised if necessary) is considered by the Academic Council.
- **Chapter 5** (*Budget Report and Resource Requests*) is sent to Director of Finance to prepare an overview report for discussion at Resources Sub-Committee of the University Executive Committee. Subsequently the report (revised if necessary) is considered by the University Executive Committee.
- **Chapter 6** (*Staffing Report*) is sent to Director of Personnel to prepare an overview report for discussion at the Staff and Educational Development Committee. Subsequently, the report (revised if necessary) is considered by University Executive Committee.
- **Chapter 7** (*Risk Management*) is sent to the DVC-AFA for an overview report to be considered by the Senior Management Quality Assurance Committee. Subsequently, the report (revised if necessary) is considered by the Academic Council.

Note: There is an Excel Workbook that is designed such as to generate all figures for this report. Please make sure to use this Excel Workbook and to submit it electronically to the VC along with this report. For more clarifications about this report please contact ext: 5881/5882/5883 or email: qao@squ.edu.om

[1]Colleges are requested not to write anything in this preface page. It is meant to be here to explain how this report will be developed, discussed, approved and used by different parties.

DEAN'S MESSAGE

Our vision is that the College of Science aspires to maintain its standing as the premier national institute and to become a renowned regional academic institution for excellence in teaching, research and community services. Concurrently we are pledge-bound to uphold our mission to provide outstanding education in science, to conduct high quality research of national and international importance, and to support the scientific development of the Sultanate. Only a continuous monitoring of our performance can ensure the implications of our aforesaid vision and mission.

In the recent years there have been intensive efforts to implicate and execute the strategic plan, action plan, quality assurance, quality standards, research and consultancy, budgetary provisions, human resource development & management, etc. The College has been monitoring the development of these items by assessing the performance of all the departments. Concurrently and more importantly continuous evaluation and assessment of student performances at all levels are being monitored closely. In almost all College Board meetings, special emphasis is given to updating the records of student performances by numerical and graphical displays.

Echoing with the recent concern of H.E. the Vice-Chancellor on students-on-probation, longer-staying students and similar problems, the College of Science has been working hard to combat these issues. All the departments are putting extra efforts to deal with these nagging problems and we hope in near future these will be greatly minimized. In all our forthcoming College Retreats these issues will be given due attention.

The College of Science research outcomes are at a very good level. Despite intensive teaching duties and other academic and administrative activities our academic staff members are involved with scholarly activities i.e. regular journal publications, conference & workshop attendance, research and project supervision, seminar presentations etc. Our research productivity has been steadily increasing in comparison to the previous years. Our faculty members have been making proper use of the various grants they secured through the His Majesty (HM) Trust, Internal Grants (IG), the Research Council (TRC) Grants and other venues. In parallel, the College is committed to ensure proper and effective use of its human and material resources.

Finally, echoing with HM the Sultan: "*One should start with the basics and then move on steadily from there. Then, as the wheel of development continues to turn, more progress will be achieved,"* the College of Science has been pushing forward the frontiers of knowledge in all possible ways. This is truly reflected in our collaborative efforts.

Dr. Saif Al Bahry

Dean, College of Science

1 EVALUATION OF COLLEGE STRATEGY AND TARGETS

1.1 Executive Summary

[THIS SHOULD PROVIDE AN OVERVIEW OF THE WHOLE CAPR HIGHLIGHTING SIGNIFICANT ISSUES, PLANS AND PRIORITIES. YOU CAN USE A TABLE TO SUMMARIZE IMPORTANT NUMBERS SUCH AS STAFF, STUDENTS, PUBLICATIONS, RESEARCH PROJECTS AND GRANTS, SEMINARS, CONFERENCES, ETC.]

The College of Science contributes to all the academic components expected from a notable higher education provider (HEP). Along with progression in normal execution of the undertaken programs, the College has made significant progress in certain issues on a priority basis. These issues certainly include teaching, research, human resource development, infrastructural development and community service. Looking at the national need of the time, the College has developed various programs including specialized courses in 2010. In parallel, the College has done everything possible to cope with the annual gradual increase in the student intake addressing this issue with utmost importance. The following items presented in the main body of the documents details the undertaken programs:

- Quality and Standard Section explains the action plan, analyze the quality assurance process and external involvement in this process, key pattern and trend in student recruitment and the anticipated action plan for the near future.
- Curriculum Planning Section spells out the various programs offered in the College detailing student enrollments during various semesters in 2010. The core perspectives of this planning were based on the national needs.
- Research and Consultancy Section details the numeric aspects of research publications, funded research and consultancy, research students, conference organizing and attendance, workshop organizing and attendance, seminar organized and attended.
- Budget Report and Resource highlights the tabular display of the allocated budget, expenditure, balance and requested budget increase. This section highlights the most effective way to display budgetary provision allocated for the College.
- Staffing Report displays the Human Resource-Staff at the College, staff demography, staff changes, capacity building activities, college teaching load, request for additional staff etc. In addition to giving the present state of the HR in the College, this section also gives hints for the future planning.
- Risk Management encompasses the entire aspects of prioritizing the imminent risks, College focal point responsible for the risk management, warning and assessing signals of occurrence of risk, impact on College if risk occurred, likelihood of risk occurring, control actions exercised by the College, aftermath of the occurrence of any risk, residual impact of risk occurrence.

The Figures, Tables and Graphics are presented at the appropriate locations to reinforce the performance records of the College in 2010. These displays not only clarify and highlight the performance records of the College, but these are expected to play important roles for future developments. The College of Science would like to thank the higher authorities of the University for extending necessary cooperation and help allowing the College to pursue its goals and aspirations.

1.2 Contribution to University Strategic Objectives

[DETAILS OF THE COLLEGE CONTRIBUTION TO THE UNIVERSITY'S STRATEGIC PLAN, ANNUAL OPERATING STATEMENT AND ASSOCIATED STRATEGIES (E.G. LEARNING AND TEACHING, RESEARCH AND CONSULTANCY, COMMUNITY SERVICES, E-LEARNING ETC.)]

The following are the details of each department's contribution to the University Strategic Plan and objectives:

DEPARTMENTAL ACHIEVEMENTS:

BIOLOGY

Teaching (curriculum development of new program; program evaluation)

- No new degree programs
- Biology continued service teaching as well as teaching our own major courses. We are offering about 40 sections each semester

Research (patents, awards, total number of published papers, students research award)

- Extension of the MEOR-PDO project. This project has been extended by six months from Oct 2010.
- Dr. Aisha Al Khayat Al Shehi was awarded a TRC for research on April 2010 for 126,000/- OMR.
- Dr. Raeid Abed received a TRC grant for research on June 2010 for 133,000/- OMR.
- A total of 4 internal grants from the College for Drs Mahmoud Yaish, Derek Roberts, Gary Brown and Raeid Abed.
- Biology Scholar Mr Mohab Al Hinai (USA) obtained two patents.
- Biology scholar Ms Lamya Al Haj received first prize for her research poster presentation.
- Joint PhD candidate (with College of Engineering) Hanau Al Sulaiman received an award by the second Saudi meeting on Oil and Natural Gas Exploration and Production Technologies (OGEP2010) for her work on: " Biosurfactant Production by *Bacillus spp.* and its Potential for Microbial Enhanced Oil Recovery in Oman."
- Biology published a total of 24 publications and 23 conference proceedings/ posters.

Publication	**Numbers**	**Per Academic Staff**	**Per Total Staff**
Journal Publications	22	0.815	0.512
Books			
Chapters in Books	3	0.111	0.070
Conference Publication	23	0.852	0.535
Technical Reports			
Articles in News Papers & Other SQU Publications	8	0.293	0.186
Book Evaluation			
Total	56	2.074	1.302

Training and Community Services (companies, alumni gathering, consultancies)

- Alumni gathering is scheduled for Thursday 28 April 2011
- Dr. Salem Al Rawahi is a member of the Steering Committee for Animal and Plant Genetic Resources Center, The Research Council (TRC), Oman Focal Point for Indian Ocean Rim Association for Regional Cooperation (IOR-ARC), Oman Focal Point for Asia Cooperation Dialogue (ACD), Oman High Technical College Curriculum Committee (HTC), National Committee for the Conservation of Oryx.
- Drs.Saif Al Bahry and Mahmoud Yaish are members on the committee charged with developing the Biotechnology Programme at Sur Technical College

CHEMISTRY

Awards [Staff]

- Dr. Hamad Al-Mamari won the Best Teacher's Award for 2010.
- Mrs. Lovie Morris won the Best Administrative Staff for 2010.
- Mr. Mohammad Farukh Khan won the Best Technical Staff 2010

Awards [Students]

- Two students Mitha Al-Jabri and Thana Al-Lawati participated in the Arabic Fourth Student Conference "Knowledge in a changing world" that was held in Sharjah University, UAE in the period of 22nd-25th March 2010 .The students paper "The Role of Environment awareness in the Reduction of Environmental problems" got the Best Presentation Award.
- A student Mustafa Salim Abdullah Barami was awarded a Silver Medal in the 3rd International Invention Fair of the Middle East in Kuwait [7-9 November 2010]. The Invention Title *"Paper Making from Palm Leaves"*.

- The Department of Chemistry offers two degree programs; Chemistry (started 1986) and Applied Chemistry (started 2007). The degree/work plans for the degrees have been revised in view of introduction of the Foundation Science Program at SQU (starting Fall 2010). The department took the opportunity to carefully consider the course pre-/co- requisites.
- The Chemistry Department has designed a number of new elective courses. The courses were designed based on instructor interests, and the feedback from alumni, current students (through the SSLC committee) and the external assessors. Courses approved and offered over the last year are listed in Table A
- The Chemistry Department offered the following (pre-approved) courses for the first time in the past year. The courses are components of the Applied Chemistry degree, and are listed in Table B.

Table A

Code (CHEM)	Course Title	Approved	First Offered
1200	Chemistry for a Better Life	Fall 2009	Spring 2010
4414	Fundamentals of X-ray Crystallography	Spring 2010	Fall 2010
4429	Fundamentals of Medicinal Chemistry & Drug Design	Fall 2009	Spring 2010
5528	Heterocyclic Chemistry	Spring 2011	Fall 2011*

*CHEM 5528 was approved this semester (Spring 2011). It is scheduled to be offered next semester (Fall 2011)

Table B

Code (CHEM)	Course Title	Approved	First Offered
4470	Industrial Organic Chemistry	Fall 2008	Fall 2010
4473	Applied Physical Chemistry	Fall 2008	Spring 2011

Publication	**Numbers**	**Per Academic Staff**	**Per Total Staff**
Journal Publications	25	0.862	0.481
Books			
Chapters in Books			
Conference Publication	16	0.552	0.308
Technical Reports			
Articles in News Papers & Other SQU Publications			
Book Evaluation			
Total	41	1.414	.0788

COMPUTER SCIENCE

Teaching (curriculum development of new program; program evaluation)
Curriculum development of new program:

- Reviewed and adapted Computer Science 2006-2010 Degree Plan to a New Format 122CH.
- Final Year Project guidelines booklet and evaluation forms were revised to take into account external examiner observations.
- Reviewing the ability to accommodate a specialization in a highly demanded area is an added value for DCS students including Web Computing and Software Development, Systems & Networking, Bio-informatics [Multi-disciplinary].
- The Foundation Program started at SQU and DCS has contributed to this by offering two new courses with 45 sections in Fall 2010 targeting the different colleges.
- The Department of Computer Science continued service teaching as well as teaching our own major courses. With regards to service courses the department offered about 32 sections in Spring 2010 and 27 sections in Fall 2010 semesters.

Program Evaluation:
The Department continued working on preparations for ABET accreditation. The key 2010 accreditation preparation activities are summarized below:

- A 2-day assessment workshop conducted by Dr. Gloria Rogers, ABET Associate Executive Director on 31st April & 1st May 2010.
- The Quality Assurance Committee has prepared rubrics and related forms needed for starting assessment of the Program Outcomes (b, c, and d) in Fall 2010.
- The Quality Assurance Committee has prepared a short guideline document and conducted two presentations to faculty members about how to conduct course assessment.
- The Quality Assurance Committee has also finalized rubrics for Program Outcomes (a, and i) that will be assessed in Spring 2011.
- The Quality Assurance Committee discussed with the external examiner the assessment plan and made some adjustments based on his feedback.
- The Quality Assurance Committee has also prepared a new Final Year Project evaluation form to be used starting Spring 2011.

Research (patent, awards, total number of published papers, student's research award)

Publication	**Numbers**	**Per Academic Staff**	**Per Total Staff**
Journal Publications	4	0.143	0.121
Books			
Chapters in Books			
Conference Publication	7	0.250	0.212
Technical Reports			
Articles in News Papers & Other SQU Publications	1	0.036	0.030
Book Evaluation			
Total	12	0.429	0.364

Training and Community Services (companies, alumni gathering, consultancies)
Alumni gathering:

- The Department arranges alumni reunion every year which started from 2007.
- The department arranges Advisory Board Meeting every year which started in Fall 2010.

Consultancies:

- Dr. Abderezak Touzene has offered a short course on Computer and Network Security in collaboration with the Community Services and Continuing Education Center at SQU (June 2010).
- Dr. Abderezak Touzene has conducted a seminar for SQU students entitled Computer Virus (December 2010).
- Dr. Y. Baghdadi delivered a short course on Oracle in collaboration with the Community Services and Continuing Education Center at SQU (June 2010).

DOMAS

Teaching (curriculum development of new program; program evaluation)

- The department is committed to reviewing its academic degree programs and has nearly finalized the revision of the postgraduate programs in statistics, pure mathematics and applied mathematics.
- The PhD programs in pure mathematics and statistics started with the enrolment of a student in each of the two programs. This is in addition to the PhD student registered in Applied Mathematics the previous year
- The Foundation Program started at SQU and DOMAS has contributed to this by offering five new courses to 2100 students from different colleges.

Research

- The Sultanate of Oman became an associate member of the International Mathematical Union (IMU) in January 2011. A delegation of two members from DOMAS attended the IMU General Assembly held in Bangalore, India, during 16-23 August 2010 to present the Sultanate's application. SQU is the adhering organization representing Oman in the IMU.
- The department organized and hosted an international conference on "Analysis and Applications" during 24-26 January, 2010. The event attracted the leading international scientists in this field and 164 participants from 40 countries attended the conference.
- The department organized the third workshop on Algebra and its Applications on 22 December, 2010.
- Dr. Mohamed Al-Lawati and Dr. Ahmed Al-Salman continue as *young affiliates* of the academy of Science for the developing world (TWAS).
- The department had an exceptionally productive year across the teaching, research and community service domains. The table below summarizes some of the research contributions.

Publication	**Numbers**	**Per Academic Staff**	**Per Total Staff**
Journal Publications	48	0.800	0.706
Books			
Chapters in Books			
Conference Publication	54	0.900	0.794
Technical Reports			
Articles in Newspapers & other SQU Publications	4	0.067	0.059
Book Evaluation			
Total	106	1.783	1.574

Training and Community Services

- The Diploma in Statistics offered by the department continues for the second year providing exceptional training for employees in the private and public sectors.
- The department is involved in the Consultancy team to help set-up the Mathematics curriculum for the Engineering undergraduate programs at the College of Applied Sciences, Sohar.
- The Department provided statistical support for faculty and staff in the colleges of Medicine, Engineering and Science.
- Professor Ibrahim Eltayeb continues as a member of the Academic Council of the University of Nizwa.
- Professor Ibrahim Eltayeb continued to be the Research Area Expert for the Theme of Culture and Basic and Social Sciences of The Research Council of Oman.
- Professor Ibrahim Eltayeb has become a member of the Membership Committee for Mathematical Sciences and Computer Science of the Science Academy of the Developing World (TWAS) located in Trieste, Italy.
- Dr. Mohamed Al-Lawati continues as national research coordinator for the Teacher Education Study in mathematics (TEDS-m). This is a cross-national study of primary and secondary teacher preparation.
- Dr. Anton Purnama continues to serve as a steering committee member of the SQU Water Research Center.
- Dr. Sebti Kerbal continues to provide his expertise in quality audit to Omani higher education institutions as a member of the external reviewers panel for Oman Academic Accreditation Authority (OAAA).

EARTH SCIENCES

1. The Department initiated a new Lab for Seismic data analysis with donation of free software and workstations from CGG Veritas Oman

2. The following new staff joined the department
   - Dr. Bernhard Pracejus joined the Department in September 2010 as Associate Professor in Geochemistry.
   - Dr. Mohamed Attalah joined the Department in September 2010 as Associate Professor in Structural geology
   - Dr. Mohamed A El-Ghali joined the Department in September 2010 as Assistant Professor in Petroleum geology
   - Dr. Sankaran Rajendran joined the Department in September 2010 as Assistant Professor in Remote sensing
   - Amani Al-Ibri finished her MSc in remote sensing and joined the Department in September 2010 as a lecturer.

Teaching (curriculum development of new program; program evaluation)
The Department started a new MSc degree in Petroleum Geology

Research (patent, awards, total number of published papers, student's research award)

Awards
- Professor Sobhi Nasir won the Best Researcher Award for 2010.
- Professor Sobhi Nasir won the Best Paper Award (SQU Sci. Journal) for 2010
- Students of the GeoGroup won the Best Student Project prizes
- The Geo-Group prepared for 2 seminars in cooperation with the EAGE (European Association of Geosciences and Engineers)and SEG (Society of Exploration Geophysics) given by two professors on the 8th of October and 28th of November 2010

Publication	**Numbers**	**Per Academic Staff**	**Per Total Staff**
Journal Publications	8	0.444	0.308
Books			
Chapters in Books	1	0.056	0.038
Conference Publication	9	0.500	0.346
Technical Reports			
Articles in News Papers & Other SQU Publications	3	0.167	0.115
Book Evaluation			
Total	21	1.167	0.808

Training and Community Services:
Consultancies
- Professor Sobhi Nasir and Dr. Mohamed Al-Wardi, Ministry of Interior: Investigation of rock fall in Tiwi area –October 2010
- Professor Sobhi Nasir and Dr. Issa Al-Hussain: Ministry of Environment Assessment of landslide in JabalSamhan, Dhofar region
- Assessment of rock fall and landslide in the new roads to the Royal palace in Qurm area: Dr. Abdulrahman Al Harthi.
- Professor Sobhi Nasir and Dr. A. Al Harthi: Economic aspects of clay in Oman. 2010. Consultancy for the National Handcraft Authority.
- Dr. Abdulrahman Al-Harthi: Economic evaluation of clay mineral in Ghaba Area.
- Consultancy for Rasiyat Al-Rayan Company
- Osman Abdullah: Assessment of results for offshore Palaeogene Basin in the Oman Sea. For Oman Oil E& P Co.
- Dr. Abdulrahman Al-Harthi: Economic potentiality of chromite in Muyasser area: mapping and geochemical analysis.
- Consultancy for Innovation Roots Company.
- Prof. Sobhi Nasir; Identification and reporting on vertebrate fossils from Doffer for Ministry of Heritage
- Osman Abdullah: Provided scientific consultation to The Oman Wastewater Services Company (OWSC) on Managed Aquifer Recharge of Treated Wastewater in Oman.

PHYSICS

Teaching (curriculum development of new program; program evaluation)
A. Curriculum Development of New Programs

1. *Minor in Applied Nuclear Science*
   The Department of Physics initiated the Minor in Applied Nuclear Science program with the development of the following courses with 3 credits each:
   - PHYS 3601 Radiation Physics
   - PHYS 3602 Fundamentals of Radiation Protection
   - PHYS 3603 Operational Radiation Protection
   - PHYS 4601 Ionizing Radiation Detection
   - PHYS 4602 Nuclear Applications
   - PHYS 5601 Introduction to Nuclear Power

2. *Minor in Astronomy [under consideration by the University Council]*
   The Department of Physics has initiated the Minor in Astronomy program with the development of the following courses with 3 credits each:
   - PHYS 2901 Introductory Astronomy
   - PHYS 3901 Mysteries of the Universe
   - PHYS 3907 Observational Techniques
   - PHYS 4901 Stellar Evolution & Nucleosynthesis
   - PHYS 3903 Introduction to Space Science
   - PHYS 4902 Galactic Structure and Cosmology
   - PHYS 3905 Essentials of Meteorology
   - PHYS 5901 Image Processing and Data Analysis

Program Evaluation:
The Department recently reshuffled/revised the requirement at applying for a Major/Minor in Physics. The minimum requirements for the programs have been spelled out as follows:

Physics: C in PHYS2101 and C in MATH1106 (or C in FPMT 0103 or C in FPMT 0105)
Physics/Medical Physics (Minor): C in PHYS2101 and C in BIOL2101, GPA 2.5 and C in MATH1106 (or C in FPMT 0103 or C in FPMT 0105)
Physics/Applied Nuclear Science (Minor): C+ in PHYS2101 and C+ in MATH1106 (or C+ in FPMT 0103 or C+ in FPMT 0105), CGPA 2.5.

Research (patent, awards, total number of published papers, student's research award)
The brief report of the Department of Physics is as follows:

Publication	**Numbers**	**Per Academic Staff**	**Per Total Staff**
Journal Publications	16	0.516	0.356
Books			
Chapters in Books	1	0.032	0.022
Conference Publication	14	0.452	0.311
Technical Reports			
Articles in News Papers & Other SQU Publications			
Book Evaluation			
Total	42	1.355	0.933

Training and Community Services (companies, alumni gathering, consultancies)
The Department of Physics had been involved with the following Training and Community Services:

1. Systematic approach to disseminating knowledge and organizing continuing education, training programs and other social activities. These include the following actions:

- The Department has been in the process of pursuing an effective coordination with public and private sectors to disseminate its research capabilities and expertise for the quest of mutual benefits.
- The Department has been extending its research activities to the Ministry of Education, particularly in the field of Nano-Science and Technology [Ref: Dr. Salim Al-Harthi]
- The Department has been contributing substantially to the development of research facilities in instrumentations and preparing logistic documents [Ref: Dr. Salim Al Harthi]
- The program on the Peaceful Usage of Nuclear Science is being well represented by the Department [Ref: Dr. Ahmed Al Rawas]
- The Medical Physics Program is being represented by the Department locally, regionally and internationally [Ref: Dr. Muataz Al Barwani]
- A number of academic staff members are collaborating with the Ministry of Education in improving the School curricula, revision of text books, module of teaching and development of low-cost experiments in schools.
- Some faculty members have been lecturing to the members of the Armed Forces over the years on specific topics. .
- The Department also extends logistic help to various public, community and private schools in introductory physics experiments.
- A number of the academic staff members are frequently publishing their write up in the local media to keep the community aware of the recent discoveries and inventions in Physics.
- Occasionally members of the Physics Staff present radio-television talks; but these should be done on a continuous basis.

1.3 Strategic Priorities

[Outline of the College's strategic priorities over the next two years. Clear links should be made to key University Strategies. Outline the College's contribution to these]

- Development of niche inter-disciplinary programs with applied nature to severed the market needs
- Marketing of the college research capabilities, services and achievements
- Enhancement in utilization of the college environment to generate products and services
- Exploitation of all research fund opportunities and encouraging groups/individuals in the college to do so. Collaborations, consultancies and focusing on research activities covering the whole value chain (i.e. from laboratory to commercialization) will be our priorities
- Establishment of system for students training, students innovative activities, alumni and community services
- Tackling students probations through different measures
- Human resource development through training and recognition
- Introducing tools and measures to reduce staff over loading
- Retaining best staff and carefully recruiting best energetic scientists
- Courses and programs evaluation through student's performance, teaching evaluation, alumni feedback, external examiners and assessors.

The college has already taken few solid steps on the above priorities. Plans are in place and committees have been working on the above issues. Among others the college contributions in this regards are:

- Development of interdisciplinary research is ongoing
- Research collaboration by different departments within departments in the College
- Research collaboration between College of Science and other colleges is ongoing
- Collaboration with other institutions
- Development of graduate and undergraduate programs relevant to Oman needs
- Development of new interdisciplinary
    - Courses of applied nature
    - Streams (programs) in the College
    - Streams (programs) between College of Science& other colleges

- 5 international students achievements and awards
- Two patents and staff international and local awards
- Proposals submitted, two major funds obtained TCR and consultancy from PDO.
- Contribution in the academic innovation assistance program by TRC with approved of 1.2 million O.R.
- Two new degree programs
- Eleven review of degree programs
- Five conferences/workshops/symposia/seminars organized

2 QUALITY AND STANDARDS

[COLLEGES ARE REQUESTED TO INCLUDE INFORMATION ABOUT BOTH QUALITY ASSURANCE AND ENHANCEMENT

Quality assurance and standards have been followed and are encouraged in the College of Science. This has been reflected in the external examiners reports as well as in the staff and students achievements. Standards have been followed in various teaching programs in 2010, for example, the College undertook extensive assessment and evolution of its programs. To some extent, individuals have benefited from the College learning outcomes practices introduced in the College. In addition, the Computer Science Department is still engaged in the ABET accreditation process.

2.1 Action Plan for the Previous Year

[PROVIDE A SHORT COMMENTARY ON THE DEGREE TO WHICH ALL ACTIONS UNDERTAKEN WERE ACHIEVED DURING THE YEAR (ACHIEVED / PARTLY ACHIEVED / NOT ACHIEVED). ANY ACTIONS DEEMED NOT ACHIEVED WOULD NORMALLY BE EXPECTED TO BE CARRIED FORWARD WITH SET TARGETS IN THE FOLLOWING YEAR]

- Increase academic staffing levels in response to increasing student numbers, increased post-graduate-level teaching and the demands from industry for collaborative research; in so doing it will seek an appropriate balance between Omani and non-Omani staff and between senior and junior faculty. PARTLY ACHIEVED BUT PROGRESSING.
- Increase technical staffing levels to cope with the higher student intakes. PARTLY ACHIEVED.
- Revise and expand the curriculum beyond the present degree program. MOSTLY ACHIEVED
- Develop a stronger post-graduate program at both Masters and Doctoral levels. PROGRESSING.
- Strengthen the research base in the College in terms of both staff and equipment. MOSTLY ACHIEVED

2.2 Analysis of the College's Quality Assurance Processes

[THIS SHOULD FOCUS ON THE OUTCOMES AND EFFECTIVENESS OF QA ARRANGEMENTS FOR BOTH COLLEGE PROGRAMS AND COLLABORATIVE PROVISION]

2.2.1 Course Section Distribution

[USE THE ATTACHED EXCEL WORKBOOK TO GENERATE THIS TABLE AND ITS CORRESPONDING FIGURE]

Table 2-1: Sections distributions

Number of Students per Course Section	Number of Undergraduate Course Sections			Number of Postgraduate Course Sections		
	Spring	Summer	Fall	Spring	Summer	Fall
< 10	24	2	24	30	-	38
10 - 19	43	5	50	1	-	1
20 – 49	193	30	196	-	-	1
50-100	49	3	42	-	-	-
>100	16	0	20	-	-	-
Total	325	40	332	31		40

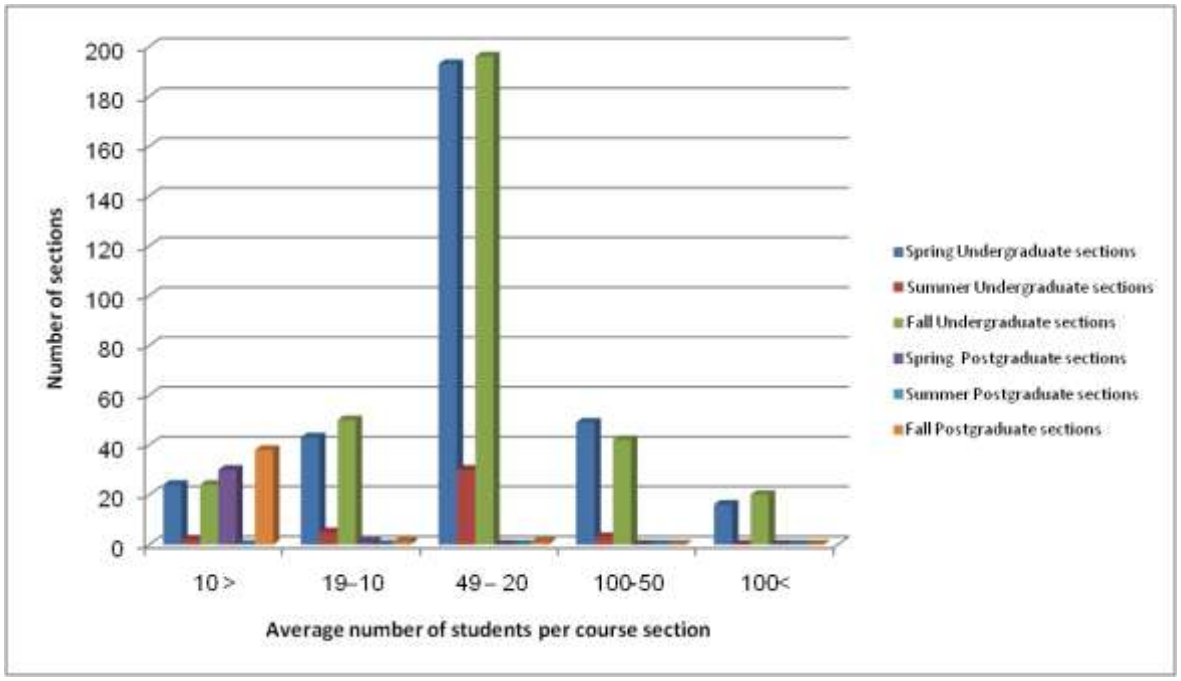

Figure 2-1: Sections distributions

2.2.2 Proportion of Courses evaluated

Table 2-2: Proportion of courses evaluated

	Undergraduate			Postgraduate		
	Spring	Summer	Fall	Spring	Summer	Fall
Number of courses offered	183	28	192	NA	NA	NA
Number of sections evaluated*	261	NA	238	NA	NA	NA
Proportion	NA	NA	NA	NA	NA	NA

* Indicated above are the numbers of valid **sections** evaluated in the College.

2.2.3 List of Programs and Departmental Reports Produced

[DETAILS OF HOW MANY PROGRAMS WERE MONITORED LAST YEAR AND COMMENTARY ON HOW THE COLLEGE POLICY IS DERIVED IF ONLY A SAMPLE IS REQUIRED. IS THERE ANY RISK ASSESSMENT CONDUCTED TO DETERMINE SAMPLE SIZE?]

Table 2-3: Reports of programs and departmental reports produced

Department	Number of programs monitored	Monitoring Cycle #
Biology	2	2
Chemistry	2	2
Computer Science	1	2
Mathematics & Statistics	3	2
Earth Sciences	2	2
Physics	1	2
College Total	**11**	

2.2.4 Undergraduate Students Performance

[EXCLUDES STUDENTS AT THE FOUNDATION PROGRAM AND USE THE ATTACHED EXCEL WORKBOOK TO GENERATE THE TABLES AND THEIR CORRESPONDING FIGURES]

Table 2-4 Undergraduate student performance in Spring 2010

Major	Graduates		Students Enrolled in Spring Semester & CGPA									
			> 3		2.5 - 2.99		2.0 - 2.49		< 2		Total	
	No.	%*	No.	%	No.	%	No.	%	No.	%	No.	%
Applied Chemistry	0	00.00%	16	41.03%	21	53.85%	2	5.13%		0.00%	39	100.00%
Biotechnology	25	10.59%	49	20.76%	83	35.17%	95	40.25%	9	3.81%	236	100.00%
Chemistry	16	7.27%	62	28.18%	94	42.73%	59	26.82%	5	2.27%	220	100.00%
Computer Science	8	3.90%	25	12.20%	47	22.93%	101	49.27%	32	15.61%	205	100.00%
Earth Science	13	6.25%	10	4.81%	88	42.31%	101	48.56%	9	4.33%	208	100.00%
Environmental Biology	3	4.11%	8	10.96%	15	20.55%	32	43.84%	18	24.66%	73	100.00%
Geophysics	3	2.61%	17	14.78%	55	47.83%	37	32.17%	6	5.22%	115	100.00%
Mathematics	4	5.33%	9	12.00%	11	14.67%	44	58.67%	11	14.67%	75	100.00%
Medical Lab Science	7	6.93%	52	51.49%	36	35.64%	13	12.87%	0	0.00%	101	100.00%
Physics	6	2.31%	45	17.31%	81	31.15%	111	42.69%	23	8.85%	260	100.00%
Statistics	5	6.25%	5	6.25%	12	15.00%	56	70.00%	7	8.75%	80	100.00%
Major Unassigned	0	0.00%	84	12.79%	121	18.42%	155	23.59%	297	45.21%	657	100.00%
Total	90		382		664		806		417		2269	100.00%

* Relative to Total College graduates

Table 2-5 Undergraduate student performance in Summer 2010

Major	Graduates		Students Enrolled in Summer Semester & CGPA									
			> 3		2.5 - 2.99		2.0 - 2.49		< 2		Total	
	No.	%*	No.	%	No.	%	No.	%	No.	%	No.	%
Applied Chemistry	0	0.00%	2	50.00%	2	50.00%	0	0.00%	0	0.00%	4	100.00%
Biotechnology	13	17.33%	14	18.67%	22	29.33%	38	50.67%	1	1.33%	75	100.00%
Chemistry	11	17.74%	6	9.68%	35	56.45%	20	32.26%	1	1.61%	62	100.00%
Computer Science	10	12.50%	3	3.75%	19	23.75%	49	61.25%	9	11.25%	80	100.00%
Earth Science	20	26.32%	5	6.58%	32	42.11%	39	51.32%		0.00%	76	100.00%
Environmental Biology	8	34.78%	1	4.35%	4	17.39%	13	56.52%	5	21.74%	23	100.00%
Geophysics	1	2.44%	2	4.88%	15	36.59%	22	53.66%	2	4.88%	41	100.00%
Mathematics	6	16.67%	3	8.33%	4	11.11%	26	72.22%	3	8.33%	36	100.00%
Medical Lab Science	1	3.57%	18	64.29%	9	32.14%	1	3.57%	0	0.00%	28	100.00%
Physics	5	7.58%	7	10.61%	18	27.27%	38	57.58%	3	4.55%	66	100.00%
Statistics	4	9.76%	5	12.20%	12	29.27%	18	43.90%	6	14.63%	41	100.00%
Major Unassigned	0	0.00%	39	15.85%	37	15.45%	44	17.89%	126	51.22%	246	100.00%
Total	79		105		209		308		156		778	100.00%

* Relative to Total College graduates

Table 2-6 Undergraduate student performance in Fall 2010

Major	Graduates		Students Enrolled in Fall Semester & CGPA									
			> 3		2.5 - 2.99		2.0 - 2.49		< 2		Total	
	No.	%*	No.	%	No.	%	No.	%	No.	%	No.	%
Applied Chemistry	0	0.00%	16	41.03%	21	53.85%	2	5.13%	0	0.00%	39	100.00%
Biotechnology	20	11.24%	22	12.36%	68	38.20%	80	44.94%	8	4.49%	178	100.00%
Chemistry	20	11.43%	44	25.14%	78	44.57%	47	26.86%	6	3.43%	175	100.00%
Computer Science	14	8.00%	13	7.43%	36	20.57%	95	54.29%	31	17.71%	175	100.00%
Earth Science	7	3.80%	9	4.89%	84	45.65%	85	46.20%	6	3.26%	184	100.00%
Environmental Biology	3	4.84%	2	3.23%	14	22.58%	30	48.39%	16	25.81%	62	100.00%
Geophysics	8	7.69%	16	15.38%	54	51.92%	31	29.81%	3	2.88%	104	100.00%
Mathematics	7	11.11%	8	12.70%	8	12.70%	38	60.32%	9	14.29%	63	100.00%
Medical Lab Science	15	21.74%	35	50.72%	26	37.68%	8	11.59%	0	0.00%	69	100.00%
Physics	19	8.26%	36	15.65%	65	28.26%	106	46.09%	23	10.00%	230	100.00%
Statistics	8	12.50%	1	1.56%	11	17.19%	45	70.31%	7	10.94%	64	100.00%
Major Unassigned	0	0.00%	101	8.66%	124	10.63%	152	13.04%	789	67.67%	1166	100.00%
Total	121		303		589		719		898		2509	100.00%

* Relative to Total College graduates

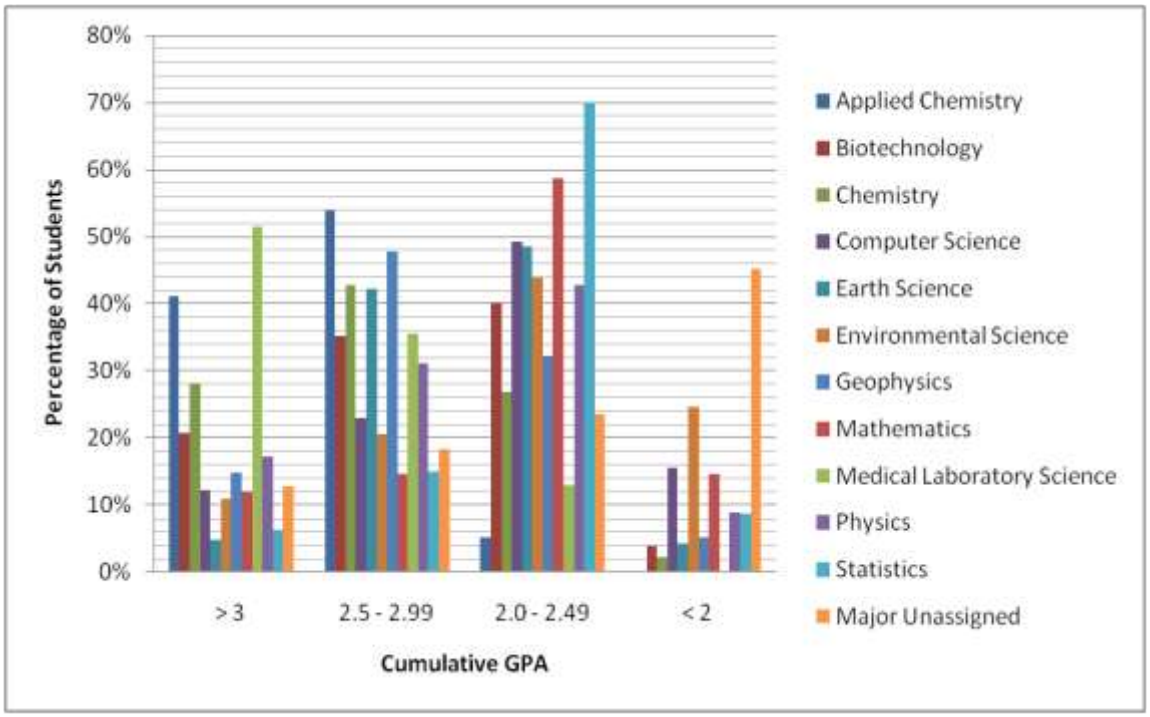

Figure 2-2: College undergraduate student performance in Spring 2010

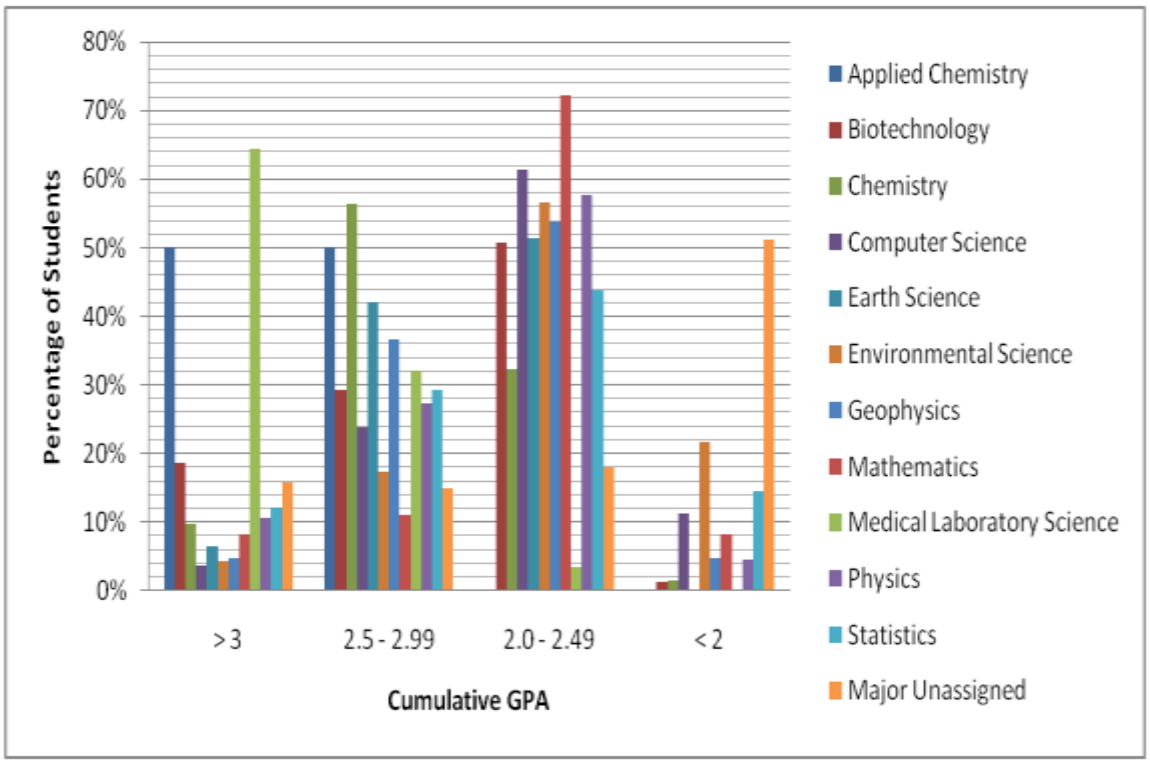

Figure 2-3: College undergraduate student performance in Summer 2010

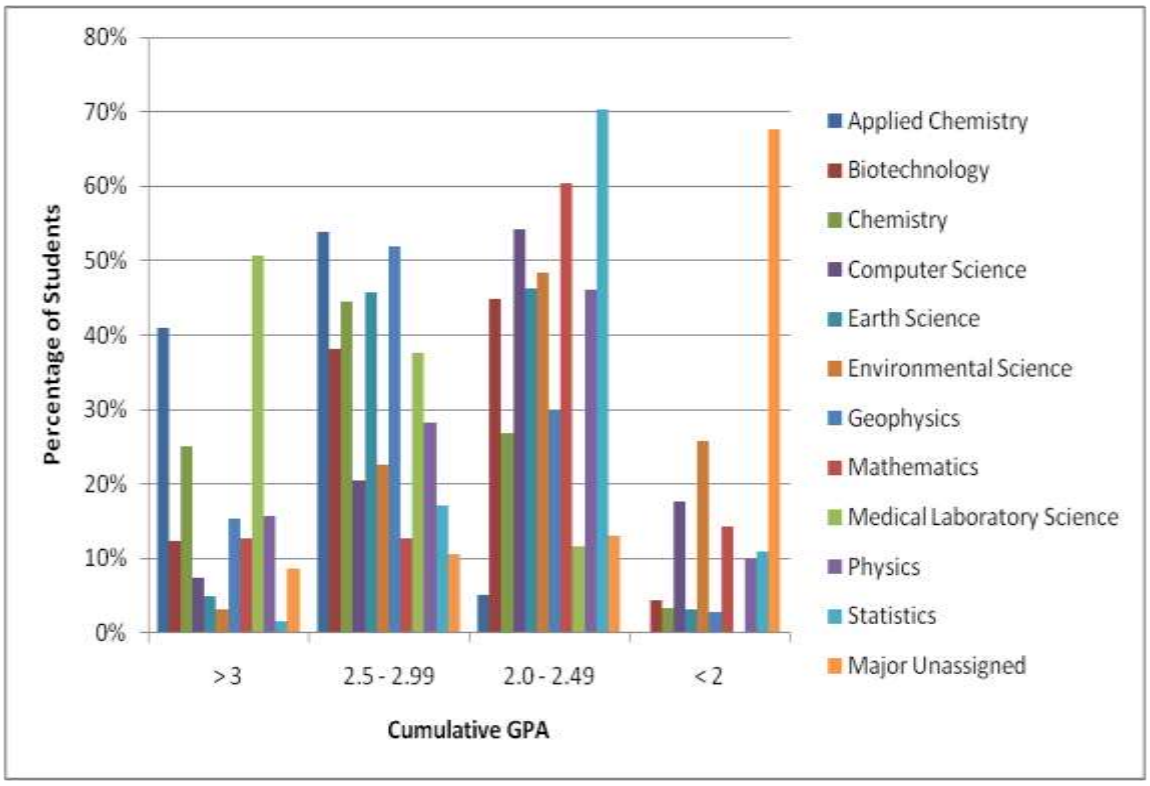

Figure 2-4: College undergraduate student performance in Fall 2010

2.2.5 Postgraduate Students Performance

[USE THE ATTACHED EXCEL WORKBOOK TO GENERATE THE TABLES AND THEIR CORRESPONDING FIGURES]

Table 2-7: Postgraduate student performance in Spring 2010

Major	Graduates		Students Enrolled in Spring Semester & CGPA							
	No.	*	> 3.5		3.0–3.49		<3		Total	
			No.		No.		No.		No.	
Biology	1	9.09%	2	18.18%	9	81.82%		0.00%	11	100.00%
Chemistry	1	5.88%	5	29.41%	9	52.94%	3	17.65%	17	100.00%
Computer Science	0	0.00%	1	9.09%	6	54.55%	4	36.36%	11	100.00%
Earth Science	0	0.00%	3	60.00%	2	40.00%	0	0.00%	5	100.00%
Environmental Sci.s	0	0.00%	0	0.00%	1	100.00%	0	0.00%	1	100.00%
Math	0	0.00%	3	33.33%	5	55.56%	1	11.11%	9	100.00%
Physics	0	0.00%	5	33.33%	8	53.33%	2	13.33%	15	100.00%
Statistics	0	0.00%	0	0.00%	3	100.00%	0	0.00%	3	100.00%
College Total	2	1.00	19	1.00	43	1.00	10	1.00	72	100.00%

* Relative to Total College graduates

Table 2-8: Postgraduate student performance in Summer2010

Major	Graduates		Students Enrolled in Summer Semester & CGPA							
	No.	*	> 3.5		3.0–3.49		<3		Total	
			No.		No.		No.		No.	
Earth Sciences	1	100%								100%
College Total	1	100%								100%

Table 2-9: Postgraduate student performance in Fall2010

Major	Graduates		Students Enrolled in Fall Semester & CGPA							
	No.	*	> 3.5		3.0–3.49		<3		Total	
			No.		No.		No.		No.	
Biology	3	14.29%	9	42.86%	11	52.38%	1	4.76%	21	100.00%
Chemistry	8	47.06%	3	17.65%	9	52.94%	5	29.41%	17	100.00%
Computer Science	1	5.56%	2	11.11%	8	44.44%	8	44.44%	18	100.00%
Environmental Sciences	0	0.00%	4	50.00%	4	50.00%	0	0.00%	8	100.00%
Earth Sciences	0	0.00%		0.00%	0	0.00%	0	0.00%	0	100.00%
Math	1	11.11%	2	22.22%	6	66.67%	1	11.11%	9	100.00%
Physics	1	6.67%	6	40.00%	6	40.00%	3	20.00%	15	100.00%
Statistics	2	40.00%	0	0.00%	4	80.00%	1	20.00%	5	100.00%
College Total	16		26	1.00	48	1.00	19	1.00	93	100.00%

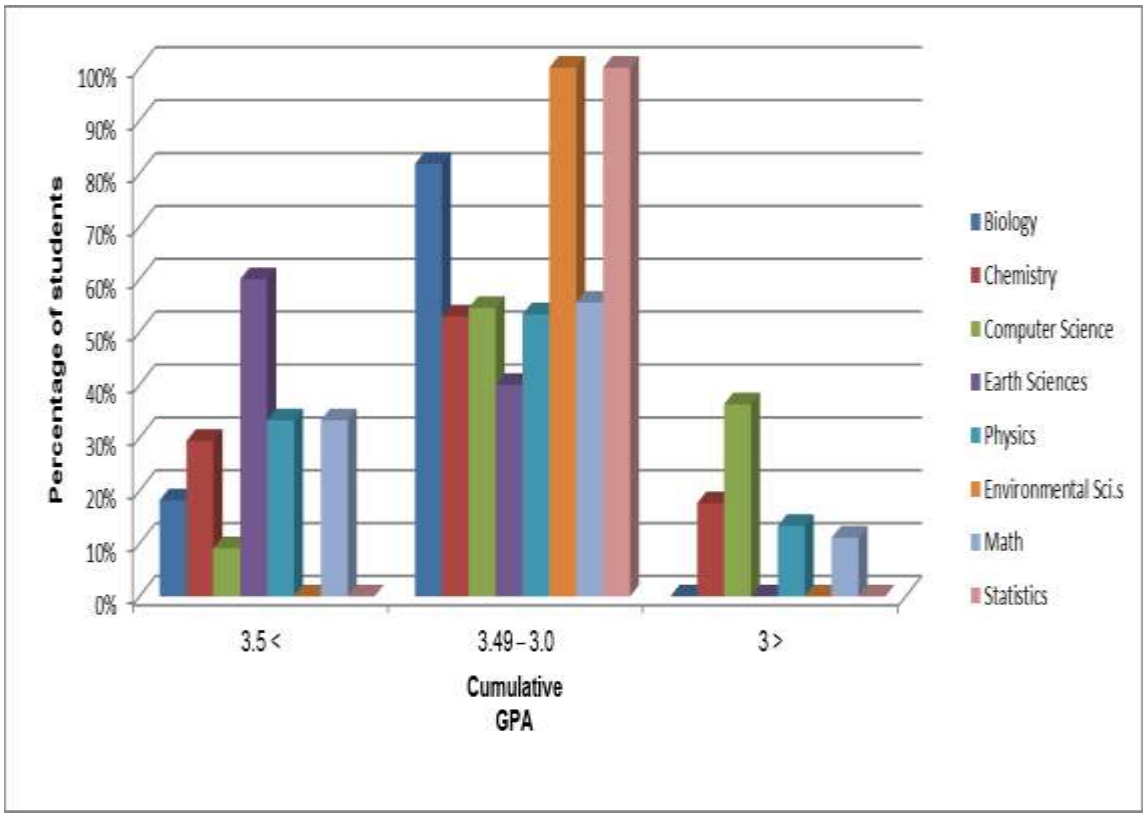

Figure 2-5: College postgraduate student performance in Spring 2010

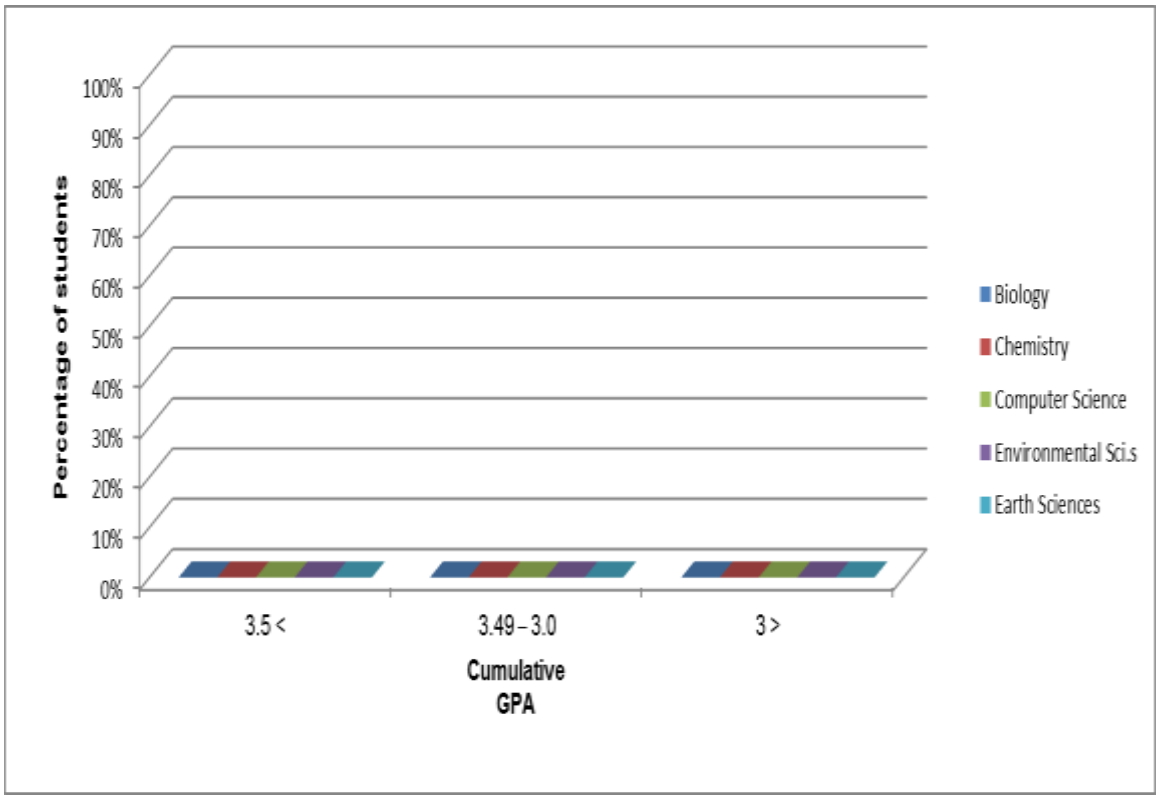

Figure 2-6: College postgraduate student performance in Summer 2010

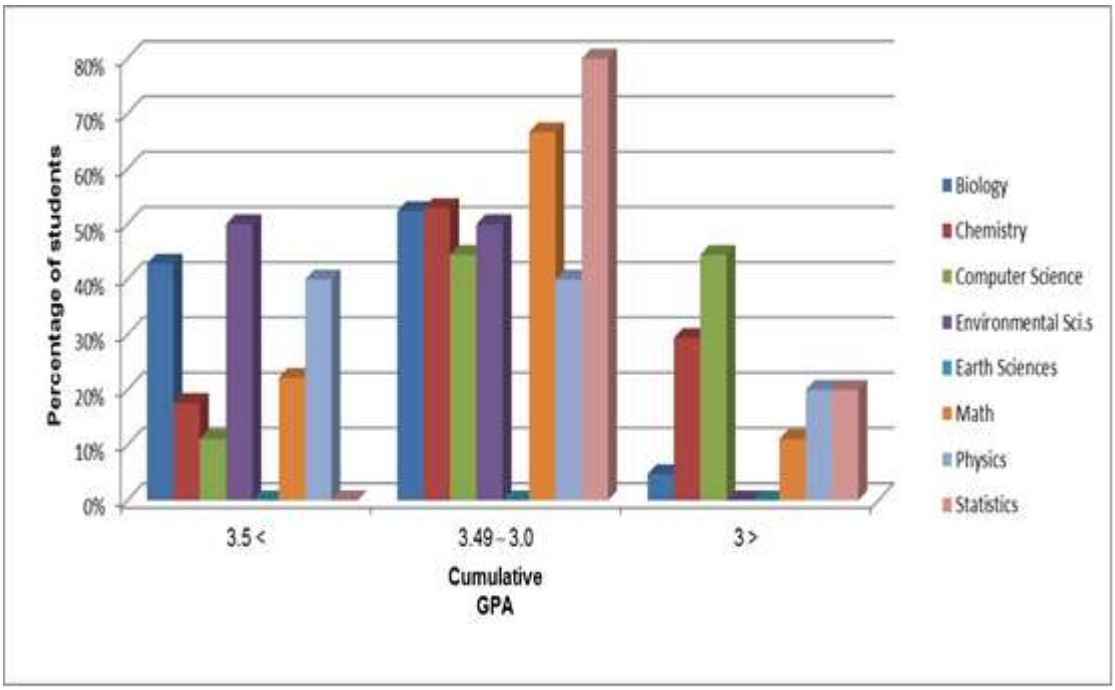

Figure 2-7: College postgraduate student performance in Fall 2010

2.2.6 Undergraduate Students in Probation

[EXCLUDES STUDENTS AT THE FOUNDATION PROGRAM FROM THE TOTAL NUMBER OF STUDENTS AND USE THE ATTACHED EXCEL WORKBOOK TO GENERATE THE TABLES AND THEIR CORRESPONDING FIGURES]

Table 2-10: Undergraduate students on probation during Spring 2010

Major	Prob 0	%	Prob1	%	Prob2	%	Prob3	%	Prob4	%	>Prob5	%	Total Prob.	%	Total enrollment	%
Applied Chemistry		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%	39	100.00%
Biotechnology	6	31.58%	4	21.05%	4	21.05%	2	10.53%	3	15.79%	0	0.00%	19	0.84%	236	100.00%
Chemistry	2	18.18%	4	36.36%	1	9.09%	2	18.18%		0.00%	2	18.18%	11	0.48%	220	100.00%
Computer Science	12	20.69%	19	32.76%	11	18.97%	2	3.45%	10	17.24%	4	6.90%	58	2.56%	205	100.00%
Earth Science	2	16.67%	4	33.33%	1	8.33%	1	8.33%	2	16.67%	2	16.67%	12	0.53%	208	100.00%
Environmental Science	1	4.76%	7	33.33%	6	28.57%	4	19.05%	0	0.00%	3	14.29%	21	0.93%	73	100.00%
Geophysics	2	18.18%	5	45.45%	1	9.09%	3	27.27%	0	0.00%		0.00%	11	0.48%	115	100.00%
Mathematics	0	0.00%	8	57.14%	2	14.29%	1	7.14%	1	7.14%	2	14.29%	14	0.62%	75	100.00%
Medical Laboratory Science	0	0.00%	1	100.0%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.04%	101	100.00%
Physics	7	12.96%	19	35.19%	11	20.37%	7	12.96%	7	12.96%	3	5.56%	54	2.38%	260	100.00%
Statistics	1	11.11%	5	55.56%	1	11.11%	2	22.22%	0	0.00%	0	0.00%	9	0.40%	80	100.00%
Major Unassigned	80	42.78%	44	23.53%	22	11.76%	24	12.83%	11	5.88%	6	3.21%	187	8.24%	657	100.00%
Total	113		120		60		48		34		22		397		2269	100.00%

Table 2-11: Undergraduate students on probation during Summer 2010

Major	Prob0	%	Prob1	%	Prob2	%	Prob3	%	Prob4	%	>Prob5	%	Total Prob.	%	Total enrollment	%
Applied Chemistry		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%	4	100.00%
Biotechnology	1	14.29%	4	57.14%	2	28.57%	0	0.00%		0.00%		0.00%	7	0.90%	75	100.00%
Chemistry	1	25.00%	1	25.00%	1	25.00%	1	25.00%		0.00%		0.00%	4	0.51%	62	100.00%
Computer Science	3	17.65%	7	41.18%	5	29.41%	2	11.76%		0.00%		0.00%	17	2.19%	80	100.00%
Earth Science	2	33.33%	4	66.67%	0	0.00%	0	0.00%		0.00%		0.00%	6	0.77%	76	100.00%
Environmental Science	0	0.00%	3	50.00%	3	50.00%	0	0.00%		0.00%		0.00%	6	0.77%	23	100.00%
Geophysics	2	33.33%		0.00%	3	50.00%	1	16.67%		0.00%		0.00%	6	0.77%	41	100.00%
Mathematics	3	33.33%	3	33.33%	2	22.22%	1	11.11%		0.00%		0.00%	9	1.16%	36	100.00%
Medical Laboratory Science	0	0.00%	0	0.00%	0	0.00%	0	0.00%		0.00%		0.00%	0	0.00%	28	100.00%
Physics	3	25.00%	5	41.67%	2	16.67%	2	16.67%		0.00%		0.00%	12	1.54%	66	100.00%
Statistics	2	22.22%	5	55.56%	2	22.22%	0	0.00%		0.00%		0.00%	9	1.16%	41	100.00%
Major Unassigned	15	34.88%	16	37.21%	6	13.95%	6	13.95%		0.00%		0.00%	43	5.53%	246	100.00%
Total	32		48		26		14						120		778	100.00%

Table 2-12: Undergraduate students on probation during Fall 2010

Major	Prob0		Prob1		Prob2		Prob3		Prob4		>Prob5		Total Prob.		Total enrollment	
Applied Chemistry		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%	39	100.00%
Biotechnology	7	33.33%	7	33.33%	2	9.52%	4	19.05%	1	4.76%		0.00%	21	0.84%	178	100.00%
Chemistry	9	47.37%	4	21.05%	1	5.26%	3	15.79%	2	10.53%		0.00%	19	0.76%	175	100.00%
Computer Science	5	11.11%	14	31.11%	6	13.33%	11	24.44%	7	15.56%	2	4.44%	45	1.79%	175	100.00%
Earth Science	3	23.08%	4	30.77%	2	15.38%	3	23.08%	1	7.69%		0.00%	13	0.52%	184	100.00%
Environmental Science	2	9.52%	7	33.33%	6	28.57%	1	4.76%	2	9.52%	3	14.29%	21	0.84%	62	100.00%
Geophysics	2	25.00%		0.00%	3	37.50%	2	25.00%	1	12.50%		0.00%	8	0.32%	104	100.00%
Mathematics	5	31.25%	3	18.75	2	12.50%	2	12.50%	3	18.75%	1	6.25%	16	0.64%	63	100.00%
Medical Laboratory Science	1	100.00%		0.00%		0.00%		0.00%		0.00%		0.00%	1	0.04%	69	100.00%
Physics	9	20.45%	15	34.09%	8	18.18%	6	13.64%	5	11.36%	1	2.27%	44	1.75%	230	100.00%
Statistics	2	15.38%	5	38.46%	3	23.08%	2	15.38%	1	7.69%		0.00%	13	0.52%	64	100.00%
Major Unassigned	54	37.76%	37	25.87%	21	14.69%	22	15.38%	9	6.29%		0.00%	143	5.70%	1166	100.00%
Total	99		96		54		56		32		7		344		2509	100.00%

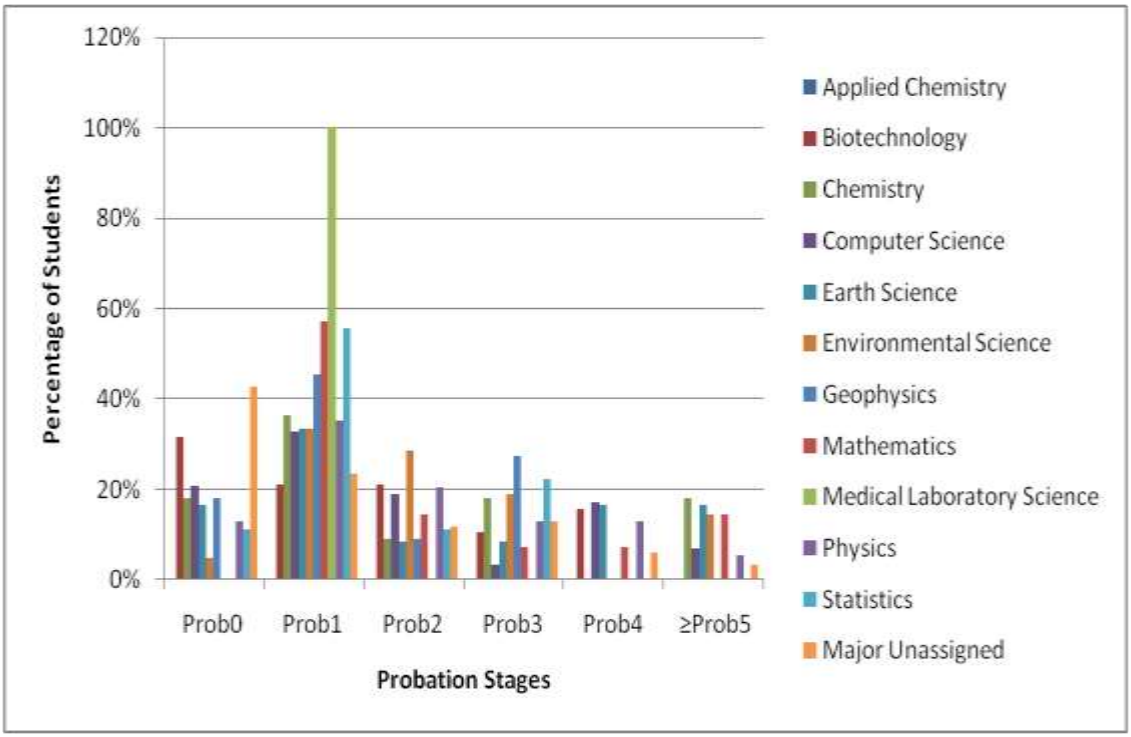

Figure 2-8: Distribution of probation according to stages during Spring 2010

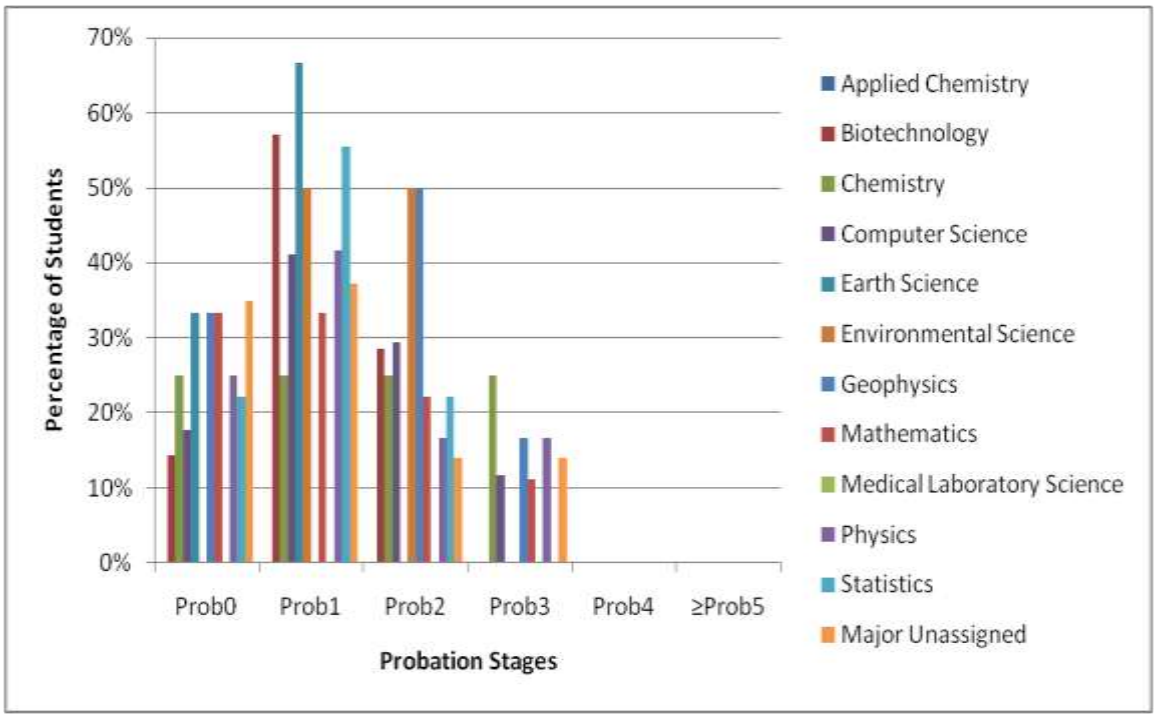

Figure 2-9: Distribution of probation according to stages during Summer 2010

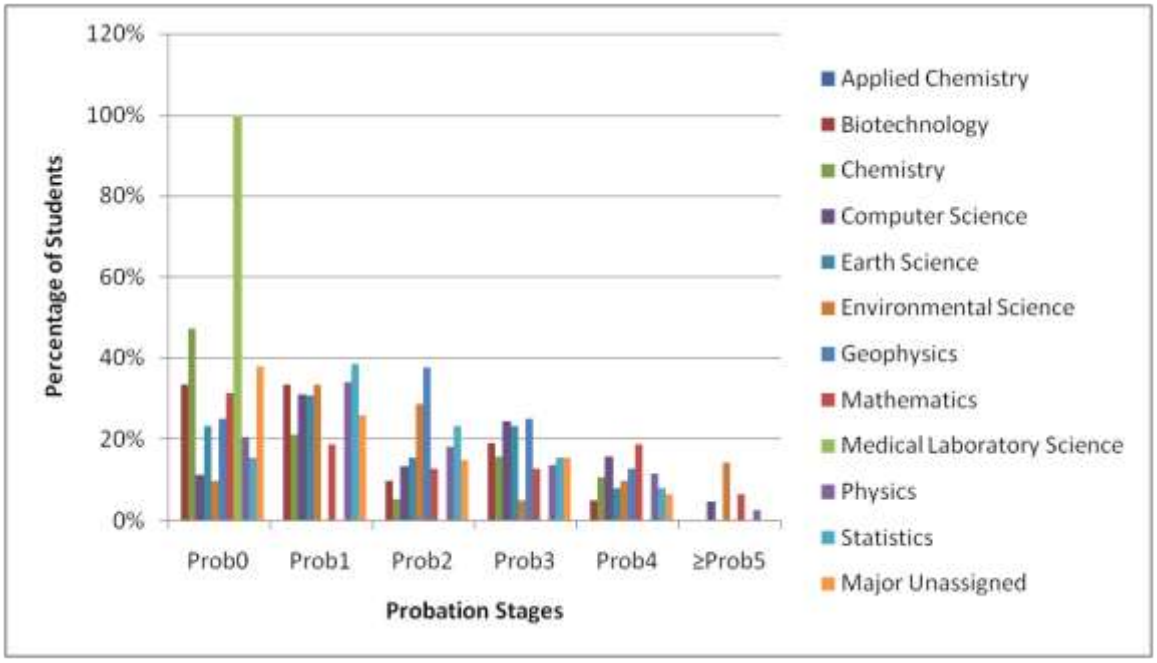

Figure 2-10: Distribution of probation according to stages during Fall 2010

[SUMMARIZE TRENDS AND ACTIONS TAKING TO IMPROVE THE PROBATION SITUATION]

2.2.7 Postgraduate Students on Probation

Table 2-13: Postgraduate students who fall in probation during 2010

Major	Spring			Fall		
	Enrolled	Prob.		Enrolled	Prob.	
Biology	11		0%	21	1	5%
Chemistry	17	3	18%	17	5	29%
Computer Science	11	4	36%	18	8	44%
Earth Sciences	1	0	0%	0	0	0%
Environmental Sciences	5	0	0%	8	0	0%
Math	9	1	11%	9	1	11%
Physics	15	2	13%	15	3	20%
Statistics	3	0	0%	5	1	20%
College Total	**72**	**10**	**14%**	**93**	**19**	**20%**

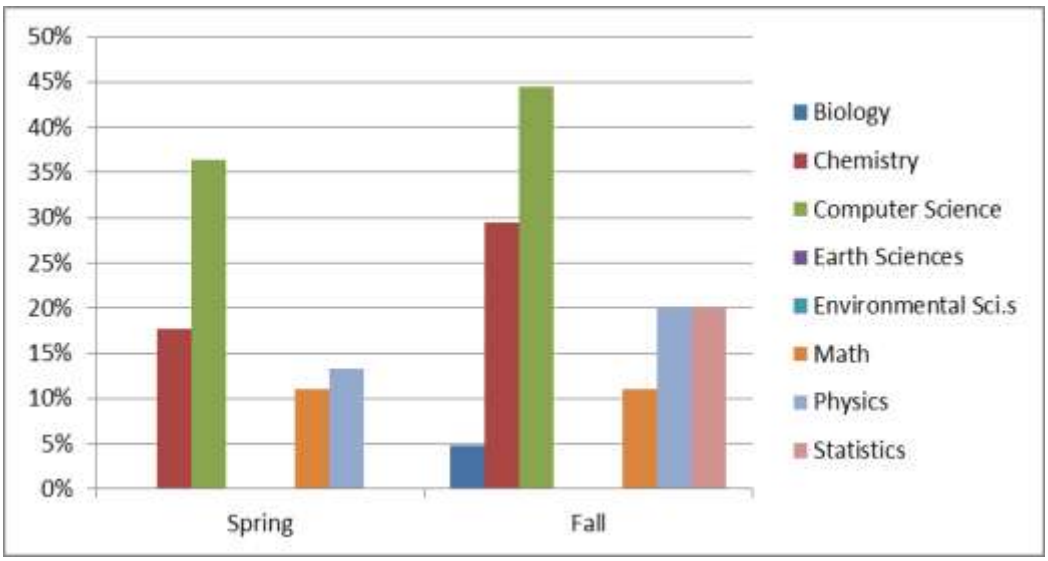

Figure 2-11: Distribution of postgraduate student's probation

[SUMMARIZE TRENDS AND ACTIONS TAKING TO IMPROVE THE PROBATION SITUATION]

2.2.8 Analysis Process

[COMMENTARY ON HOW COLLEGE REPORTING STRUCTURES ALLOW FOR IDENTIFICATION, REVIEW AND DISTILLATION OF SALIENT ISSUES AT SENIOR COLLEGE MANAGEMENT LEVEL AND WHEN THE DRAFT CAPR WAS AGREED AT COLLEGE BOARD LEVEL. HOW ARE THE OUTCOMES (RESULTANT ACTIONS) OF THE MONITORING CYCLE FED BACK TO THE STUDENT BODY?]

The College of Science follows a systematic procedure for identification, review and distillation of the salient issues at senior college management level on all aspects affecting the college. Most of the aspects are initiated at the departmental level, going through the College Executive level and finally decided at the College Board. For the CAPR the College Board approval was taken after having feedback from the Departmental and College Executive levels mentioned as above. The outcomes of the monitoring cycle relevant to student affairs are effective and operational.

2.2.9 Developments in Learning support, including initiatives linked to Student Support and Advising Program

[COLLEGES MAY WISH TO INCLUDE ASPECTS OF THEIR ACTIVITIES WHICH SPECIFICALLY RELATE TO STUDENT LEARNING SUPPORT AND ADVISING HIGHLIGHTING EXAMPLES OF GOOD PRACTICE.]

The College is serious about developing and upholding activities specially related to student learning support. This is achieved mainly via effective advising by the academic advisors at the departmental and college levels. The development in learning support linking student support and the advising program is given continuous attention by the College through the departments. In support of this process, the College has taken the following steps during 2010:

- The Departmental Student-Staff Liaison committees met the students from various cohorts and student groups on a regular basis to extract first-hand information about the issues that warranted immediate resolution.
- The College Student-Staff Liaison Committee met to address the issues raised at the departmental levels. If not exceptional, the College tries to resolve issues at the college level.

- The student probation issue has been dealt with seriously at all relevant levels in the College. The academic advisors had been more vigilant than any time before. Following HE the Vice-Chancellor's directives, the College geared up all possible efforts to minimize the problem and difficulties encountered by the probation and related problems.

2.2.10 Details of Employers Links

[PROVIDE A SHORT SUMMARY OF THE NATURE OF THE COLLEGE'S LINKS WITH LOCAL, NATIONAL AND INTERNATIONAL EMPLOYERS. HOW MANY EXTERNAL EXAMINERS (PROJECTS, THESES) ARE SQU GRADUATES' EMPLOYERS? HOW DO EMPLOYERS FEED INTO CURRICULUM DEVELOPMENT? HOW MANY ACADEMIC PROGRAMS ARE TAILORED TO MEET THE NEEDS OF, AND DELIVERED TO, A SPECIFIC EMPLOYER?]

The College is linked to the local, national and international employers through different means e.g. the alumni, departmental advisory board committees, training of students, MSc and PhD theses assessment, PhD co-supervision, external examiners/evaluators, visiting scientists, applied research projects such as MEOR-PDO project, consultancy and collaborations. Employers have been feeding on the curriculum development in Physics, Earth Science, Computer Science and Chemistry through Departmental Advisory Boards Committees. Applied Chemistry and other new courses from the Chemistry Department, Biotechnology from the Biology Department, minors in Medical Physics, Applied Nuclear Science and Astronomy from Physics Department are examples of niche programs tailored to meet the specific employer needs. The College is also embarking on the development of interdisciplinary research and streams to meet the market needs, enhancing job chances of its graduate and widening its local and international research collaborations.

2.3 External Involvement in quality assurance and standards

2.3.1 Overview of approval activity in the previous year

[PROVIDE LIST OF PROGRAMS APPROVED IN THE PREVIOUS YEAR AND BRIEF SUMMARY OF THE ISSUES ARISING FROM APPROVAL ACTIVITY E.G. WHERE THERE CONSISTENT THEMES EMERGING FROM THE CONDITIONS PLACED UPON DEVELOPMENT TEAMS, THE LEVEL OF EXTERNALITY EMPLOYED IN APPROVAL EVENTS AND THE EXTENT TO WHICH DEVELOPMENT TEAMS MET CONDITIONS AND THE DEADLINES SET. PROVIDE COMMENTARY UPON THE RANGE AND EMPHASIS OF NEW COURSES APPROVED. HOW HAS THE COLLEGE USED ITS APPROVAL POWERS TO MAKE CHANGES TO THE ACADEMIC ENVIRONMENT OF THE STUDENT (E.G. AMENDMENTS TO COURSES DUE TO CHANGES IN ASSESSMENT POLICIES AND STRATEGIES).]

The departments in the College have been involved in curriculum development of new programs and their evaluation processes. The followings are the approved programs and activities associated with them:

EARTH SCIENCES

The departmental research activities, curriculum and degree plans were reviewed by an External Examiner over the last two years. This process will continue in the coming years.

DOMAS

- The Foundation Program started in Fall2010 with Mathematics being one of the components. Five mathematics courses have been approved - three are offered in English language and two in Arabic.
- The international conference on Analysis and Applications took place in January 24-26, 2010.
- The 2nd international conference on Numerical Analysis and Optimization took place in January 3-6, 2011.

- The Degree Programs of Mathematics, Statistics and Health Statistics were revised for 2010-2015 cohorts.
- The 3rd Workshop on Algebra and Its Applications took place in December 2010.

PHYSICS

In the academic year 2009/2010 the Physics Department submitted two minor programs.

- The first is in Applied Nuclear Science. The approval process of this program went smoothly through the relevant bodies and committees starting at the departmental level, to the college level and at the level of the university.
- The preparation of the Applied Nuclear Science minor was supported by the International Atomic Energy Agency [IAEA] through an expert mission. On the recommendation of the expert Prof. F. Hoyler, from Aachen University, Germany the Department prepared the Applied Nuclear Science minor document, which was approved by the University.
- The second minor was on Astronomy and Meteorology. The approval process of this minor faced a number of difficulties. These are rooted into amalgamation of the two disciplines into one minor. Although the minor was approved at departmental and college levels, it failed at the university level. Instead, the University approved a minor in Astronomy with some observations.

The academic environment in the Department is in line with assessment policies and strategies.

2.3.2 Review Activity in the previous year and proposed reviews in the next two years

[UPON WHAT BASIS WERE/ARE THESE REVIEWS DETERMINED (UNIVERSITY INSTIGATION, EXTERNAL AGENCY REQUIREMENT ETC). HOW DID/WILL THE COLLEGE EMPLOY RISK ASSESSMENT TOOLS TO DETERMINE THE LEVEL AND NATURE OF THE REVIEW?]

DOMAS

- Approved the International Conference on Radical Theory, Rings and Modules which will be held in January, 2012.
- Approved the Conference on Difference Equations which will be held in 2013.

EARTH SCIENCES

Programs approved: MSc program in Petroleum Geology. The program was approved by the Department, MSc curriculum Committee, College Board, Academic Council and finally by the University Council. The program will run in September 2011.

PHYSICS

- The Physics Department has been smoothly running the minor program in Applied Nuclear Science. The anticipated Peaceful Usage of Nuclear Physics program in Oman will be benefitted out of this minor.
- The minor in Astronomy is under consideration by the University. There are job opportunities in various government and non-government organizations for the graduates with Astronomy.

The Department has undertaken necessary steps to assess the future implications of the programs mentioned as above. These steps are expected to be helpful in the review process. The Department will embark on further extending its programs on multi-disciplinary courses e.g. introduction of nano-science program in the coming years.

2.3.3 Details of External Agency Visits

[WHICH AGENCIES CAME TO THE COLLEGE IN THE PREVIOUS YEAR. PROVIDE BRIEF SUMMARY OF THE PURPOSE OF THE VISIT AND FOR WHICH PROGRAMS. WHAT WERE THE OUTCOMES OF THE VISIT IN TERMS OF PROFESSIONAL RECOGNITION OR ACCREDITATION?]

DOMAS

Visit of H. E. Huppert to DOMAS, SQU, and Oman: Professor H.E. Huppert, of the Department of Applied Mathematics and Theoretical Physics, University of Cambridge, visited the Department of Mathematics and Statistics in the period 19 -22 February 2010. The visit is part of the efforts being made to foster collaboration between the two departments in research and postgraduate supervision. The visit was arranged by the Office of External Cooperation.

The specific purpose of the visit was to identify the possible areas of collaboration and those personnel who would like to participate in such activity. Professor Huppert sent a report to H.E. the Vice-Chancellor about his visit in which he identified those who are willing to collaborate on research projects from both sides.

The Department of Mathematics is at present proposing a 2-3 days workshop for the two sides to agree on joint research projects.

EARTH SCIENCES

External Examiner, Professor Robert Stern, Dallas University, USA visited the Department in 2010.

PHYSICS

1. **Visit by IAEA Expert Professor F. Hoyler:** The purpose of this visit was to review the contents, course materials, relevant experiments supplementing the courses, the lab facilities, and expertise of the available academic and technical staff. In addition he advised on the suitability of establishment of a nuclear science and technology program in SQU at the postgraduate level. The necessity of introducing neutron experiments if the program is going to be related to Nuclear Physics Program (NPP) is realized by the department. Here the IAEA could be very helpful in giving advice on the transportation of a neutron source and on the save use of it.

2. **Visit by Nuclear Science Expert Dr. O. Ibrahim:** Most of the laboratories visited are well equipped with scientific equipment, but it was clear that, in some of them, users lack knowledge and experience of the role of radiation and nuclear techniques as tools for research and development. Hence, education, training and applications are restricted to the Department of Physics in the College of Science and the College of Medicine and Health Sciences. Even in these two institutions the problems of quality control, safety and security are given limited attention.

   Expansion in uses of radiation and radiation sources to address a range of applications in support of research development and services are to be expected, particularly after the Sultanate has joined the IAEA. The visits reflected the desire in these institutions to utilize the techniques as tools in their research and services. The lack of knowledge and experience requires acquainting workers in these sectors with the following:
   1. Basic scientific knowledge of radiation and radioisotopes,
   2. Potential uses of these techniques in different sectors, and
   3. Attention to safety and security.

   The existing educational facilities and staff in the College of Science may be supplemented with a training facility that offers training to the concerned staff of end users institutions.

3. **IAEA Medical Physics Experts:** The visit had a wider scope. The purpose of the visit relevant to SQU was to review the :
   - current organization of medical physics in Oman and suggest improvements to ensure optimum medical physics support in radiation oncology and imaging.
   - medical physics education program to ensure integration of clinical training into the medical physics organization.

A Medical Physics education program leading to a BSc in physics, with a minor in medical physics, is in place at the Sultan Qaboos University. The BSc program is not comprehensive and does not include a clinical training component. It should be reviewed and improved to fit clinical needs.

2.3.4 Responses to External Examiners Reports

[SUMMARIZE MAJOR ACTIONS TAKEN IN RESPONSE TO EXTERNAL EXAMINERS REPORTS]

DOMAS

STAT External Examiner report is very positive. It brought up only two points.

- Low student enrollment.
  Response: This is a result of the extreme decentralization of teaching statistics at SQU. If teaching of Statistics is to be the responsibility of this department, enrollment in Statistics courses will be higher than in many others, but only SQU administration can take such an action.
- MSc program:
  a. Replace the General Linear Model course by Generalized Linear Models:
  Action: adopted and course description of the course is being prepared.
  b. Introduce a terminal track MSc for those who will not be pursuing further degrees: The option is being explored.

MATH

- A faculty as being committed is able, hard-working and striving to give excellent service for students at all levels.
- Teaching and administrative loads are very heavy by international standards. Nevertheless, DOMAS is committed to continue improving the teaching skills and tools, although disagree with teaching a group of 160 students in a large hall.
- The student load has grown enough that it is not sustainable with current teaching models and numbers of staff which is not proportional to that of students.
- There can be justification for failures on a qualifying course to ensure that they retake the course until they have acquired the knowledge for subsequent courses. However, the remarks about the students taking their failure easy at SQU cannot be considered generally true.
- DOMAS needs to maintain efforts to attract more MSc and PhD students. It considers offering more introductory courses.
- The comments on research activity are very positive. However, it was noted that research activity is severely limited by the amount of time available.

In the new degree plan, DOMAS took the above comments into account and considered the implications.

EARTH SCIENCES

- Department board discussed the external examiner report and sent feedback about it to the University administration

.

Quality and standard actions:

- Course evaluation: this will be done through peer review
- Department monitoring: External Examiner
- Review activity: appraisal, College control
- Recommendations by External Examiner: approval by Departmental Board, Administration
- Committee meeting: minutes and follow up
- Student Survey: Staff- Student Liaison Committee
- Employer feedback: meeting, questionnaire
- Action plan: follow up and monitoring

PHYSICS

In the academic year 2009/2010 the recommended External Examiner could not come because of sickness.

2.4 Key Patterns and Trends in Student Recruitment

[PLEASE CONFINE YOUR REPORT TO THE IDENTIFICATION OF TRENDS, BOTH POSITIVE AND NEGATIVE, AND ACTIONS THAT MAY ARISE OR HAVE ARISEN OUT OF YOUR ANALYSIS. WHILST THE EMPHASIS IN THIS REPORT IS UPON COLLEGE LEVEL PROVISION, YOUR REPORT SHOULD DRAW TO THE UNIVERSITY'S ATTENTION POSITIVE AND NEGATIVE ASPECTS OF DEPARTMENTAL PROVISION WITHIN YOUR COLLEGE AND IN PARTICULAR SHOULD ATTEMPT TO IDENTIFY TRENDS AT THE PROGRAM LEVEL]

Student recruitment has been an issue in the College of Science based on the nature of academic programs offered. The College has been working on suitability of these programs to find a balance between fundamental scientific and local market needs. In 2010 a slight decrease in the number of student recruitment was observed. This decrease was attributed to the global financial recession and its consequence to the country to create new jobs directly related to science graduates. Computer Science and IT related job opportunities have not been affected like other disciplines in the College. However, due to the skills gained by the College graduates during their studies some of our graduates were able to compete in areas related to engineering, administration and business. It was observed that students' preparation for job interviews, communication skills and final year project have an effect on getting jobs. Equally, students who received summer straining had an upper hand and advantage of getting a job. Therefore, the College is seeking assistance in terms of student transportation and accommodation to enhance its students training capabilities. The trends explained above are based on individual communication and contacts. In light of this, the College is planning to get more solid information through continuous contacts with alumni.

2.5 Quality and Standards Action Plan for the next two years

[PROPOSED ACTION PLAN FOR THE NEXT TWO YEARS. THIS SECTION SHOULD PROVIDE THE UNIVERSITY WITH A CLEAR SET OF ACTIONS IN RESPONSE TO THE ISSUES OUTLINED IN THE SECTIONS ABOVE: COURSE EVALUATION, PROGRAM/DEPARTMENTAL MONITORING, APPROVAL AND REVIEW ACTIVITY, RECOMMENDATIONS MADE BY EXTERNAL EXAMINERS, UNIVERSITY INITIATIVES, PROGRAM COMMITTEE MEETINGS, STUDENT SATISFACTION SURVEY, QUALITY AUDITS, DEVELOPMENTAL ENGAGEMENT, VISIT BY PROFESSIONAL AND STATUTORY REGULATORY BODIES, COLLEGE MECHANISM WHICH GATHER EMPLOYER FEEDBACK. COMMENTARY SHOULD ADDRESS THE PROGRESS ON THE ACTION PLAN FOR THE PREVIOUS YEAR.]

The following is the proposed action plan based on the College and University strategic objectives for the next two years:

- Course evaluation through monitoring of students performance and elimination of repetitive examination questions.
- Course evaluation through ABET requirements for Computer Science Department and encouraging other departments to look into course evaluation and programs through adaption of quality assurance requirements and external examiners recommendations
- Compliance with SQU Strategic Plan requirements through utilization of cooperate software
- Strengthening and development of IT solutions to provide practical solutions to the encountered problems in the College.

3 CURRICULUM PLANNING

3.1 Programs Offered

Table 3-1: Number of Programs

Department/Program	Diploma	BSc	Higher Diploma	MSc	PhD
Biology				2	1
Chemistry				1	1
Computer Science				1	1
Earth Sciences				2	2
Mathematics & Statistics				3	2
Physics				1	1
TOTAL				10	8

3.2 Student Enrollment – Spring2010

Table 3-2: Students enrolled in Spring2010

Department	Number of Students											
	Diploma		Bachelor		Bridging		MSc		PhD		Total	
	Om*	Ex**	Om	Ex	Om	Ex	Om	Ex	Om	Ex	Om	Ex
Applied Chemistry			39								39	
Biology							12		2		14	
Biotechnology			236								236	
Chemistry			219	1	2		14	1			237	
Computer Science			204	1	3	1	7				216	
Earth Science			208				1				209	
Environmental Biology			73								73	
Environmental Sciences							5				5	
Geophysics			115								115	
Mathematics			75		4		6				85	
Medical Lab Science			101								101	
Physics			260		1		14		2		277	
Statistics	13		80				3				96	
Major unassigned			657								657	
Total	13		2267	2	10	1	62	1	4		2360	
Omanis												

3.3 Student Enrollment – Summer 2010

Table 3-3: Students enrolled in Summer2010

Department	Number of Students										Total	
	Diploma		Bachelor		Higher Diploma		MSc		PhD			
	Om*	Ex**	Om	Ex	Om	Ex	Om	Ex	Om	Ex	Om	Ex
Applied Chemistry			4								4	
Biotechnology			75								75	
Chemistry			62								62	
Computer Science			80								80	
Earth Science			76								76	
Environmental Biology			23								23	
Geophysics			41								41	
Mathematics			36								36	
Medical Lab Science			28								28	
Physics			66								66	
Statistics	13		41								54	
Major unassigned			246								246	
Total	13		778								791	
Omanis												

3.4 Student Enrollment – Fall 2010

Table 3-4: Students enrolled in Fall 2010

Department	Number of Students										Total	
	Diploma		Bachelor		Bridging		MSc		PhD			
	Om*	Ex**	Om	Ex	Om	Ex	Om	Ex	Om	Ex	Om	Ex
Applied Chemistry			39								39	
Biology					1		20		3		24	
Biotechnology			177	1							177	1
Chemistry			174	1	5		15				194	1
Computer Science			173	2	11		6	2	1		191	4
Environmental Sciences							8				8	
Earth Science			184		1						185	
Environmental Biology			62								62	
Geophysics			104								104	
Mathematics			63		2		8	1			73	1
Medical, Lab Science			68	1							68	1
Physics			230		2		14		2		248	
Statistics	13		64		2		3		1		83	
Major unassigned			1162	4							1162	4
Total	13		2500	9	24		74	3			2618	12
Omanis												

3.4.1 Transfers and Dropouts

Table 3-5: Student transfers and dropouts

College		Transfer In		Transfer Out			Dropouts
Number of Students at the start of 2010		Number of Students	%	Number of Students	%	Number of Students	**%**
Spring 2010	2405	30	1.25	22	1.81	38	**1.58**
Summer 2010	803	-	-	-	-	5	**0.62**
Fall 2010	2700	39	1.45	20	0.74	12	**0.44**
Total		**69**		**42**		**56**	

4 RESEARCH AND CONSULTANCY

4.1 Publications

Publication	Numbers	Per Academic Staff	Per Total Staff
Journal Publications	123	0.535	0.383
Books			
Chapters in Books	5	0.022	0.016
Conference Publication	123	0.535	0.383
Technical Reports			
Articles in News Papers & Other SQU Publications	16	0.0696	0.050
Book Evaluation			
Total	267	1.161	0.832

4.2 Funded Research and Consultancy

4.2.1 Statistics

Table 4-1: Funded research and consultancy

Funds	Amount in OR	Per Academic Staff (rounded)	Per Total Staff (rounded)
HM Grant			
Internal Grant	80,000	347.826	249.221
Research Council	124,750	542.391	388.629
Research Contract	86,880	377.739	270.654
Consultancies	1,450	6.304	4.517
Total	293,080	1274.261	913.022

4.2.2 Areas of Growth

[WHAT WERE THE MAIN AREAS OF GROWTH IN CONTRACTING FOR RESEARCH AND CONSULTANCY?]

- Microbial enhanced oil recovery (Oil Industry)
- Evaluating Poetry Paint (Craft Industry)

4.2.3 Main Undertaken Initiatives

[ALSO LIST THE MAIN INITIATIVES WHICH WERE UNDERTAKEN IN THE COLLEGE TO INCREASE RESEARCH AND CONSULTANCY CAPACITY AND CONTRACTING DURING THE PAST YEAR, AND COMMENT BRIEFLY ON THE SUCCESS OF EACH OF THEM (NO MORE THAN ONE PARAGRAPH EACH)]

College of Science encouraged and supported applications for external projects funding and collaborations with and research visits to other institutions.

Collaborating with the Industrial Innovation Center (IIC) in identify potential areas of interest in the industry resulted in two projects agreements on Developing IIC database by the department of Computer Sciences and investigating poetry clay and paints in Oman by the department of Earth Sciences. The IIC database project aims to maintain

information about the researchers, industries and innovators and it will assist in identifying potential researchers in different academic institutions and related industries in the Sultanate for collaborations. The poetry clay & paints (Craft Industry) project assisted in the identification of clay deposit location clay for Poetry.

The College of Science participated in the 5th SQU - PDO Technology Souq, which provided an opportunity for the College to publicize its research capabilities and expertise related to Oil Industry and learns about the potential common research areas of interest with PDO. One of the successful ongoing projects with PDO is on Microbial enhanced oil recovery.

The contract research between the Department of Chemistry and PDO on Feasibility for using surfactants as an EOR option for Lekhweir fields in Oman concluded and the next phase project was planned for 2011.

4.2.4 Main Planned Initiatives

[LIST THE MAIN INITIATIVES PLANNED IN THE COLLEGE FOR NEXT YEAR TO INCREASE RESEARCH AND CONSULTANCY CAPACITY. PLEASE PROVIDE A BRIEF DESCRIPTION OF EACH ONE (NO MORE THAN ONE PARAGRAPH EACH).]

The College started reviewing the current status of the capital equipments in the College in order to plan and establish an effective system for utilization and service quality management.

4.2.5 Successes and Challenges

[PROVIDE BRIEF GENERAL COMMENT ON SUCCESSES AND CHALLENGES IN THE COLLEGE DURING THE PREVIOUS YEAR IN MEETING THE RESEARCH AND CONSULTANCY PLAN OF THE UNIVERSITY (MAX. 500 WORDS)]

- The College of Science established international research collaborations with international and local institutions that enabled it to benefit from collaborators facilities and experiences. e.g. University of Paris 13 in France and University of Bath in UK.
- The College achieved a balance with respect to applied (12) and fundamental (11) research projects funded through internal grants in accordance with the strategic plan of the university.
- The College established with the participation of researchers from national-private and international institutions research groups that were successful in obtaining internal grants and TRC funds.
- The College encouraged cooperation with international institutions known in specialized research areas through allocating money for international research visits (24) and international research consultant invitations (15) from 2010 internal Grants.
- In 2010, the College was successful in adding a new MSc program in Petroleum Geosciences specialization, which was the product of collaborative efforts from the public and private sector institutions. In the future, the college is going to follow the same approach for developing and supporting more of its postgraduate programs.
- The College faced some challenges with respect to consultancy services because of the lack of full report on the current status of all college research facilities and service quality management and therefore even if we have the required facilities we cannot ensure the quality level of service.

4.3 Research Students

4.3.1 Postgraduate Research Students Enrolled

Table 4-2: Research Students Enrolled in 2010

Major	Full Time				Part Time			
	MSc by coursework	MSc by research	PhD	**Total**	MSc by coursework	MSc by research	PhD	**Total**
Biology	8		3					11
Chemistry	7		2		1			10
Computer Science			1		2			3
Environmental Sciences	5							5
Earth Science					1			1
Mathematics	3							3
Physics	10		2					12
Statistics	1		1					2
College Total	**34**		**9**		**4**			**47**

4.3.2 Postgraduate Research Students Graduated

Table 4-3: Research Students Graduated in 2010

Major	Full Time				Part Time			
	MSc by coursework	MSc by research	PhD	**Total**	MSc by coursework	MSc by research	PhD	**Total**
Biology	4			4		-	-	8
Chemistry	7			7	2	-		16
Computer Science	1			1		-		2
Environmental Sciences						-		
Earth Science	1			1		-		2
Mathematics	1			1		-		2
Physics	1			1				2
Statistics	2			2		**-**		**4**
College Total	**17**			**17**	**2**			**36**

4.3.3 Areas of growth

[In what areas does the College have the most opportunity to grow research student numbers?]

In 2010, following an increase in enrolled student numbers, the College had the most opportunity to grow research student numbers in the biology, physics and environmental sciences.

4.3.4 Planned Initiatives

[Describe new initiatives to grow research student numbers planned for next year]

In alignment with the increase of enrolled students in the College of Science postgraduate programs, we are encouraging research proposals that involves postgraduate students.

4.3.5 Quality Supervision

[WHAT MEASURES DOES THE COLLEGE HAVE IN PLACE TO ENSURE THE QUALITY OF POSTGRADUATE RESEARCH STUDENT SUPERVISION?]

The College is encouraging supervisors to attend supervision workshops organized by the Deanship of Postgraduate Studies. In addition, the College proposed a postgraduate file to assist managing progress and development of the PhD students.

4.3.6 Success & Challenges

[SUMMARIZE THE SUCCESSES AND CHALLENGES IN THE COLLEGE REGARDING POSTGRADUATE RESEARCH STUDENT ACTIVITY (MAX. 500 WORDS)]

Due to the small number of PhD students, the College supports their attendance at specialized meetings and short visits to other international institutions allowing them to interact and learn more from scientists in their research fields and utilize facilities that are not available at SQU. Also, we support short visits of co-supervisors from other institutions to closely follow-up their students' progress.

4.4 Conferences, Workshops and Seminars

Table 4-4: Conferences, workshops and seminars

Conferences/Workshops/Seminars		Numbers	Per Academic Staff	Per Total Staff
Conferences Attended by Faculty & Staff		104	0.452	0.324
Workshops Attended by Faculty & Staff		30	0.130	0.094
Seminars Attended by Faculty & Staff				
Conferences Organized by Faculty & Staff		8	0.035	0.025
Workshops Organized by Faculty & Staff		2	8.697	6.231
Seminars organized	By Faculty & Staff	17	0.074	0.053
	By Visitors to the College	17	0.074	0.053
Total		178	0.774	0.555

5 BUDGET REPORT AND RESOURCE REQUESTS

5.1 Allocated Funds

Table 5-1: Allocated funds

Type	Amount(RO)	Per Staff (RO)(rounded)	Per Student (RO)(rounded)
Salaries	6,881,625		
SQU Budget Allocation(Capital + Recurrent)	934,000	27,423	2710
College Total Revenues (other than from SQU budget)*	45,753	160	22
Total	7,861,378	27,583	2732

*[*SUMMARIZE THE SOURCES OF DIFFERENT REVENUES OTHER THAN THE BUDGET FROM SQU AND PROPOSE WAYS FOR FURTHER DEVELOPMENT OF THESE REVENUES]*

Currently, the College revenues come from both internal and external research projects as shown in the above table. However, the existing facilities such as the Central Analytical and Applied Research Unit and Thin Section Unit have got high potential to generate income for the College. The College is also developing interdisciplinary programs, which might also be a potential source of revenue. Starting in 2011, the College will push its efforts along this line.

5.2 Expenditures

Table 5-2: Expenditures

Type		Amount (RO)
Expenditures	Salaries	6,100,853
	Equipment	642,255
	Educational Supplies	371,618
	Staff Development	23,099
	Student Societies	1,500
	Others	-
	TOTAL	7,139,325

[COMMENT OF THE HIGHEST EXPENDITURES AND PROPOSE WAYS FOR FURTHER OPTIMIZATION OF FINANCIAL RESOURCES WITHOUT JEOPARDIZING QUALITY]

The highest expenditure is on capital equipment which clearly emphasizes that the College is on the right track in building its facilities in accordance with the long-term strategic plan of the university. This endeavor is expected to generate adequate revenues from various prospective avenues aiming to enhance valuable productivity of the college.

5.3 Balance

Table 5-3: Total Balance

Type	Amount (RO)
Total net income (from Table 5-1)	7,861,378
Total Expenditures (from Table 5-2)	7,139,325
Balance	722,053

[COMMENTARY ON POSITIVE OR NEGATIVE BALANCE AND ON HOW TO IMPROVE THE BALANCE TO OPTIMIZE RESOURCES]

The balance shows a positive trend but the reality is that the balance is negative because the College extracts most of its support from the Finance Department. Once the College can ensure generation of some of sufficient support from outside bodies in its research endeavor via consultancy and/or advisory efforts and marketing its potential capabilities, this balance will help in optimizing resources.

5.4 Requested Budget Increase

[DEFINE AND JUSTIFY ANY FUTURE NEED FOR BUDGET INCREASE]

The College of Science is the largest college in the University rendering its service to almost all other colleges. Over the years its domain of activities and services is expanding with a steady increase of student intakes and expansion of its research outputs. Taking these into account, the College would need additional research space and more funds to sustain capital equipment and student activities. The College needs additional human resources (academic, technical, and administrative staff) to support the increasing student intake every year. Overall, the finance department is fully supportive whenever the college needs financial support. In parallel, the college strategy is spearheading its efforts to commercialize and generate revenues that will effectively support the establishment of research and teaching facilities in the College.

6 STAFFING REPORT

6.1 Human Resources- Staff at the College

Table 6-1: Staff profile at the College

Department	Academic								Tech, Eng, Assoc.Res.		Admin		Total	
	A		B		C		<C							
	Om	Ex	Om	Ex	Om	Ex	Om	Ex	Om	Ex	Om	Ex	Om	Ex
Dean's Office			1		3				2		12	3	18	3
Biology	-	3	2	6	4	7	5	-	15	-	-	1	26	17
Chemistry	1	1	1	7	7	8	3		18	2	1	1	31	21
Comp Science	-	1	2	3	5	4	5	8	3	1	-	1	15	18
DOMAS	-	4	1	24	6	19	6	-	1	-	5	2	19	49
Earth Sciences		1	-	5	5	5	2	-	7	-	1	-	15	11
Physics	-	4	2	11	6	4	4	-	11	1	1	1	24	21
Total	1	14	9	56	36	47	25	8	57	4	20	9	148	140
Omanization														

Summary

Number of Academic Staff at Grade C or above	=	164
Consultants	=	33
Number of Academic Staff below Grade C	=	33
Number of Non-Academic Staff	=	91
Total Number of Staff in the College	=	321

6.2 Staff Demography

[COMMENT ON THE DEMOGRAPHY OF STAFF WITH REFERENCE TO AGE, GENDER, ETHNICITY AND DISABILITY. ARE THERE ANY AREAS WHICH NEED A STRATEGIC RESPONSE?]

Owing to certain sensitivities, for the time being we refrain from making any comment in this section.

6.3 Staff Changes

Table 6-2: Staff changes in 2010

Staff	Type change	Number
Admin Staff	Left the College	
	Hired by the College	4
	Balance	
Tech Staff	Left the College	5
	Hired by the College	5
	Balance	
Academics	Left the College	5
	Hired by the College	24
	Balance	

[REVIEW OF STAFF CHANGES OVER THE YEAR AND THE IMPLICATIONS E.G. FOR CURRICULUM DELIVERY. COMMENT ON RECRUITMENT AND RETENTION ISSUES - ACTION TAKEN OR PROPOSED]

The College needs financial grades to support the services that are being provided to the students. Moreover, no grades were provided to the College during the last two years. The college has been using the grades of staff who have resigned. The College therefore needs additional academic grades and technicians to conduct their business effectively.

6.4 Capacity Building Activities – Investment on People

Table 6-3: Human resources development activities

Staff	Activity	Number	Cost
Admin Staff	Training	3	**7500**
	Technical visit		
	Study		
	Others		
Tech Staff	Training	8	15000
	Technical visit	4	3500
	Study	2	
	Others		
Academics	Conference Attendance	76	25000
	Sabbaticals		
	Study	11	
	Research/Technical Visits		
	Short Courses	5	
	Workshops	15	
	Others		
Total		124	

[SUMMARY AND EVALUATION OF PREVIOUS YEAR'S STAFF DEVELOPMENT ACTIVITIES MENTIONING SPECIFIC USE OF HR DEVELOPMENT FUNDING]

6.4.1 Local arrangements for management of staff development, induction and mentoring

BIOLOGY

- To follow the program of our PhD scholars abroad.
- To get training for technical staff in Biology

CHEMISTRY

- The Omani Assistant Professors are doing very well in teaching (two have been awarded College of Science Best Teacher awards) and are actively involved in committees, but lag behind in research development which is delaying their readiness to apply for promotion to Associate Professor position. To rectify this, Assistant Professors are being paired up with mentors who are advising them on research development and promotion requirements.

COMPUTER SCIENCES

The following staff (Technicians) had been sent for training.

- Wasila Al-Busaidi, "Solaris 10 Administration 1& 2", UK, July 2009.
- Suliman Al-Salmi, "Introduction to Linux", USA, March 2009.

EARTH SCIENCES

- Faculty are encouraged to utilize intranet/internet and multimedia in teaching
- Increase in number of home pages and feedback from students. Course syllabuses and course materials show increased usage of intranet/internet and multimedia

PHYSICS

- Turkiya Al-Shahumi attended a workshop on Organization and the Establishment of a National Monitoring Program for the Control of the Radioactive Sources at the Diplomatic Club, Muscat, Oman from 18-22 December 2010.
- Fadhila Al-Mabsali participated to the Basic Plus CPR, AED and First Aid organized by the SQU on 11 August 2010. She also attended a Training Program on Advanced Level English between September – December 2010.
- Coordinators Jun Penero and Zuleikha Al-Mahrooqi attended training sessions on Secretarial Improvement during October – December 2010.
- Ali Al-Zaabi attended a workshop on Organization and the Establishment of a National Monitoring Program for the Control of the Radioactive Sources at the Diplomatic Club, Muscat, Oman from 18-22 December 2010.

6.4.2 Priorities and plans for staff development for the next two years (including outcomes of appraisal)

BIOLOGY

- Needs to appoint demonstrators to enhance the Omanization process especially while some members will soon reach retirement age.

CHEMISTRY

- Appointment of 2 Omani demonstrators to keep up the rate of Omanization with an expanding Department.
- Appointment of 5 Academic Staff (3) in Applied, (1) Analytical and (1) Physical Chemistry to teach the new Applied Chemistry Degree Program, replace departed staff and cater for the increase in the department FTEs.
- Appointment of 10 Technical Staff to replace departed (4) and departing (2) staff, introduction of the Applied Program (2) and cater for the increase in the department FTEs (2).
- Appointment of 4 instructors (MSc holders) in place of academic position (2 instructor in place of 1 academic position) to do lower level chemistry courses (teach lectures, tutorials and lab demonstrations) so as reduce the teaching load of the academic staff.

COMPUTER SCIENCES

- Plan to send 2 M.Sc. (Lecturers) for PhD.
- Plan to encourage faculties to be engaged in sabbatical programs
- Plan to have a collaborative research program with Malaysian university, West London College of Business and Management Sciences, UK, and Lakehead University, Canada.
- Plan to organize adjunct activities
- Plan to send two faculties on short research visits
- Plan to hire a software testing specialist to enhance the teaching and research activities of software engineering group.
- Appoint ABET specialist to help and improve ABET activities
- Appoint Executive Administrator to organize the work of the Department Committees to reduce the administrative work of the faculty members in order to have more time to improve their research.

EARTH SCIENCES

- Increase in utilization of information technology in courses.
- Strive to work closely with industry.
- Review, update and develop its graduate programs where appropriate

PHYSICS

- Appointment of bright Omani graduates as demonstrators helping the Omanization process
- Appointment of Academic Staff to develop new and demanding academic program
- Appointment of Technical Staff to reinforce technical demand
- Send young Omani academic staff abroad for Human Resource Development. This will in turn contribute positively to the Omanization process

6.4.3 Evaluation of how staff development activities support the College and University strategic plans

BIOLOGY

- Provide demonstrator positions.
- Provide scholarships for MSc and PhD.
- Provide technician training (on-the-job).

CHEMISTRY

- Provide demonstrator positions.
- Provide scholarships MSc and PhD for demonstrators and lecturer respectively.
- Provide technician training.

COMPUTER SCIENCES

- Sending technicians for special training to support research groups in the department
- Conducting special workshops by calling consultants in different demanded computer science areas, to train academic staff to know how to do consultancy in different areas
- Encourage academic staff to work as technology transfer agents with industries. This would improve the skills of the staff and enable them to become consultants.
- Sending academic staff for sabbatical leaves would enhance their research.
- All the above plans will help the department, college and university strategic plans for its smooth implementation.

EARTH SCIENCES

- Research area to follow the strategic plans
- Curriculum development
- Research equipment

PHYSICS

- Appointing 2 Demonstrators will enhance Omanization process;
- Appointing 1 Assistant Professor will help developing the Astronomy/Astrophysics program;
- Appointing 2 Technicians will cope with the growing demand of the increase in students intake along with enhancing Omanization process;
- Send young academic staff abroad for higher education & training will help in building efficient Human Resource Development as per the vision of the SQU;
- All the above plans will help the College and University Strategic Plans for its implementation.

6.4.4 Percentage of staff appraised during the previous year (academic, support, total) and actions taken to improve appraisal rates in the next two years.

BIOLOGY

- Academic staff - 20/20 = 100%
- Support (Technical) staff - 14/14 = 100%
- Total - 34

CHEMISTRY

- Academic staff 100%
- The Appraisal process was stressful to staff this time round but is expected to be less stressful as the staff get used to it.

COMPUTER SCIENCES

- Faculty members appraised:13; Faculty members appraised: 2 (HoD + Asst. Dean for T & CS submitted to Dean's office) Total: 15
- Technical staff appraised: 4; Administrative staff appraised: 1; Lecturers were not enquired to submit their appraisal form. They will be asked to do so next year.
- The appraisal reports are being reviewed on yearly basis. The feedback is being addressed to the appraisers for their consultation and future improvement.

EARTH SCIENCES

- 100%. No actions is needed as all faculties participated

PHYSICS

- Percentage: about 80%
- The Appraisal Reports/Feedbacks are being reviewed and evaluated on a continuous basis

6.4.5 Action plan for staff development over the next two years

[SUGGEST SKILLS TO BE IMPROVED AND TRAINING COURSES NEEDED]

BIOLOGY

- Demonstrator grades needed.
- Scholarships for MSc and PhD.
- Specialized equipment operation training by technical staff.

CHEMISTRY

- Appointment of 2 Demonstrator grades is required.
- MSc and 1 PhD Scholarships needed for the demonstrator and lecturer respectively.
- Specialized equipment operation training for technical staff especially training for the NMR instrument.

COMPUTER SCIENCE

- Faculties:
  a. Teaching skill in general. (Through attending regular staff development workshops.)
  b. E-Learning skills to use the currently available e-Learning tools and accommodate blended learning. (By attending e-Learning workshops.)
  c. Skill to explore new and emerging fields of research. (Attending conferences, visiting other institutions through regular sabbatical leave programs, staff exchange programs)
  d. Skill to maintain research contributions. (By presenting papers and giving research seminars.)
  e. Skill to apply one's research towards the community. (Through collaboration or regular secondment programs with related industries).

- Technical Staff:
  a. Skill to run the labs with modern tools. (Attending regular training by professional companies, workshops related lab maintenance).
  b. Skill to maintain computer resources. (Attending training courses in computer maintenance).

EARTH SCIENCES

Workshop in using multimedia and design of private academic website, online teaching and evaluation

- Strengthen the research base in the Department in terms of both staff and equipment, and develop it in areas that are particularly industry-relevant (e.g. sedimentology, geophysics, hydrogeology).
- Strengthen the research base in the Department through collaboration with the research centers for GIS and Remote Sensing, and the Earthquake Monitoring Centre.
- Develop a program of professional development for both academic and technical staff.

PHYSICS

- Plan to appoint 2 Demonstrators
- Will appoint 1 Assistant Professor for Astronomy
- Need to appoint 2 Technical Staff
- Send 3 Lecturers abroad for PhD.
- Send 1 Demonstrator abroad for MSc

[THE FTE STUDENT/STAFF RATIOS THAT WERE AGREED ON AND USED IN THE PAST ARE: CAMS 8:1, CASS 23:1, CCE 15:1, CEDU 15:1, CENG10:1, CS 13:1. YOU CAN BENCHMARK TO THESE VALUES IN ORDER TO EVALUATE YOUR COLLEGE SITUATION]

Table 6-4: Department/College FTEs

Department	Spring 2010 FTE	Fall 2010 FTE
Biology	282.933	268.933
Chemistry	468.533	452.333
Computer Science	275.267	205.533
DOMAS	932.533	817.667
ES	280.8	217.867
Physics	480.733	518.6
Total	2720.8	2480.933

6.5 Request for Additional Staff

[DEFINE AND JUSTIFY YOUR NEED FOR ADDITIONAL STAFF. IT IS RECOMMENDED TO USE FTE AS A MEASURE FOR ACADEMIC STAFF NEEDS]

CHEMISTRY

- Appointment of 2 Omani demonstrators to keep up the rate of Omanization with an expanding department.
- Appointment of 5 Academic Staff (3) in Applied, (1) Analytical and (1) Physical Chemistry to teach the new Applied Chemistry Degree Program, replace departed staff and cater for the increase in the department FTEs.

COMPUTER SCIENCES

- The department needs to appoint an academic staff in the Software Engineering area to help in teaching and research.

EARTH SCIENCES

The department needs an addition of faculty in the field Geophysics as the number of students increased into 30 students. The department also needs two extra technicians to cover the extra working loads in the department.

PHYSICS

The Department asked for the following positions:

- One Nuclear Physics position to enhance the Applied Nuclear Science minor program.
- One permanent position for an electronic technician to replace a resigning technician.
- One temporary technician to cope up with the present technical need at the department
- Five Visiting Consultants to fill up the vacant FTE academic positions

7 RISK MANAGEMENT

7.1 Top 5 risks faced by the College

1. Space and lab facilities
2. Increase in number of students
3. Increased teaching load negatively affecting research
4. Aging teaching and research equipments
5. Slow procurement process of teaching & research supplies

7.2 Who in College manages/monitors risk?

[FOCUS ON 5 TOP RISKS LISTED ABOVE]

The Dean of the College manages and monitors the risks. This is done at different levels: individuals, Executive Committee of the Board, and the College Board Members.

7.3 What are early warning signals to indicate an occurrence of risk?

[FOCUS ON 5 TOP RISKS LISTED ABOVE]

- Handling different issues individually rather than collectively
- Complaints from students, staff within the College or outside the College
- Lack of space, deteriorating of equipment and lack of consumables.
- Non-compliance to the rules, regulations and discipline
- Discrepancy in students grades and staff assessment
- Overlapping of responsibilities and lack of coordination
- Reduction in number of journal publications
- Non-compliance with deadlines
- Lack of knowledge-based evidence

7.4 Impact on College if risk occurred

[FOCUS ON 5 TOP RISKS LISTED ABOVE]

- Deterioration of teaching & research quality
- Breakdown of the administrative chain
- Frustration and low lying productivity among staff members
- Falling behind the international level and standard
- Lack of confidence building measures

7.5 Likelihood of risk occurring

[FOCUS ON 5 TOP RISKS LISTED ABOVE. A SCALE OF 1 – 5 SHOULD BE USED TO QUANTIFY THESE ASSESSMENTS]

1. Space (1)
2. Staff (1)
3. Teaching and research equipment replacement (2)

4. Slow purchasing of teaching & research supplies (2)

7.6 Controls/mitigating actions exercised by College

[FOCUS ON 5 TOP RISKS LISTED ABOVE]

- Hiring consultants & requesting budget increase from SQU administration.

7.7 After action, what is residual impact on College if risk occurred?

[FOCUS ON 5 TOP RISKS LISTED ABOVE. A SCALE OF 1 – 5 SHOULD BE USED TO QUANTIFY THESE ASSESSMENTS]

1. Space (1)
2. Staff (1)
3. Teaching and research equipment replacement (3)
4. Slow purchasing of teaching & research supplies (3)

7.8 After action, what is residual likelihood of risk occurring?

[FOCUS ON 5 TOP RISKS LISTED ABOVE. A SCALE OF 1 – 5 SHOULD BE USED TO QUANTIFY THESE ASSESSMENTS]

1. Space (1)
2. Staff (1)
3. Teaching and research equipment replacement (3)
4. Slow purchasing of teaching & research supplies (3)