



SCHOOL OF SCIENCE
(Mathematics Division)

Postgraduate Level

**Problem Solving, Statistical Analysis,
Data Analysis**

2020

Christ's University in Pacific (CUP University) is a registered higher education provider under the TNQAB Act 2004.

**CUP School of Science Handbook
Department of Applied Mathematics**

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Christ's University in Pacific
Nuku'alofa, Tongatapu
KINGDOM OF TONGA**

I. WELCOME NOTES

Welcome to Christ's University in Pacific, (CUP), Department of Mathematics! To prepare you for a successful and fulfilling career, we offer and coordinate all the requirements for study postgraduate program in Applied Mathematics. We look forward to assisting you and providing many opportunities to enhance your future career. As a Mathematics Administration student you are advised to use this handbook, along with other important information sources, for guidance in the postgraduate mathematics program. Official information sources include the Postgraduate Handbook, Student Manual, Class Schedule, and department academic advisors. Regularly meeting with an academic advisor is a good way to stay informed.

II. THE PURPOSE STATEMENT

The purpose of the mathematics major is to provide students with the opportunity to develop their analytical thinking, quantitative reasoning, problem-solving, and communication skills that will prepare them to succeed in either graduate school or in a variety of careers in business, industry, government, or teaching. Concurrently, the applied mathematics major will help students recognize mathematics as the language God used in establishing the physical laws of the universe.

Learning Outcomes: Graduates of the mathematics program will be able to;

- explain key concepts in the major areas of postgraduate applied mathematics,
- apply established methods of problem solving in the major areas of postgraduate applied mathematics,
- apply abstract reasoning to mathematical systems, and
- communicate the nature of applied mathematics as the language of science and as a means of representing the natural laws that God established in Creation.

III. CUP CALENDAR YEAR 2020

<p>JANUARY</p> <table border="1"> <thead> <tr> <th>M</th> <th>T</th> <th>W</th> <th>R</th> <th>F</th> <th>Sa</th> <th>Su</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> </tr> <tr> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> </tr> <tr> <td>20</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> <td>25</td> <td>26</td> </tr> <tr> <td>27</td> <td>28</td> <td>29</td> <td>30</td> <td>31</td> <td></td> <td></td> </tr> </tbody> </table>	M	T	W	R	F	Sa	Su			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			<ul style="list-style-type: none"> • 13th – 17th January: SCHOOL SYSTEM CONFERENCE (NZ) • 27th January: CUP UNIVERSITY STAFF & TEACHERS BEGINS • 29th January: STAFF AND TEACHER DEVELOPMENT 							
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NB: Public Holidays will notify!

IV. PROGRAMME FACTUAL SUMMARY

Qualification Titles: Master of Science (Mathematics Administration)
Division: Mathematics
School(s): Science
Total Credits: 240
Level: 8 & 9

Pre-requisites: The qualifications are CUP programmes developed and taught at CUP
Entry Requirements: Have achieved B.Sc.

Contact CUP for full details.

Objectives: Students in Faculty of Mathematics:

The objective of the mathematics major is to provide students with the opportunity to develop their analytical thinking, quantitative reasoning, problem-solving, and communication skills that will prepare them to succeed in either graduate school or in a variety of careers in business, industry, government, or teaching. Concurrently, the mathematics major will help students recognize mathematics as the language God used in establishing the physical laws of the universe.

Delivery Mode: Mostly face-to-face with self-directed learning. Additional learning materials are offered in a virtual e-learning environment.

Content Statement: Mathematics communicate the nature of mathematics as the language of science and as a means of representing the natural laws that God established in Creation.

Delivery Site: Nuku'alofa Campus, Tongatapu
Start Date: Semester 1, 2020
Qualification Developer: Christ's University in Pacific

Contacts: Dr. Vili Vailea Saulala (P.hD.)
Acting Vice-Chancellor
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Associate Professor Viliami Takau (P.hD.)
Dean of School of Science
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V. GENERAL INFORMATION

CUP University is a private, co-educational institution with a Christian philosophy of education. CUP University's purpose is to provide Tongan students with a rigorous, challenging education that is firmly based in the Bible and inspires commitment to Christian service.

When you are a student at CUP University you can expect to enjoy several advantages:

- **A Supportive Learning Environment:** CUP University's Mathematics Division appreciates the opportunity to develop personal relationships with students who desire to build on the spiritual foundation that our learning environment provides. Faculty members are committed to help each student grow as a whole person.
- **Small Class Sizes:** Our average class size of 15 students or less encourages interaction between students and faculty as well as among students. You'll enjoy a high degree of personal attention that may not be possible in larger school settings.
- **Highly Qualified Faculty:** Our faculty members are trained professionals with expertise in their academic fields. Focused on serving the Lord and their teaching, many have made CUP University their home.

Academic Regulations & Policies

In accordance with our motto: "Mo'ui 'ia Kalaisi" and for the overall wellbeing of the campus, the Administration and faculty desire to maintain a high standard of moral conduct from the students. The policies given aim at maintaining a clean God-honouring student body where students have a high respect for God and His Word (the Bible), as well as for their Administrators, Lecturers and fellow students. Within this Christian atmosphere, the student will be encouraged to grow spiritually, mature in the Lord, develop personal responsibility, select the right kind of true friends, excel academically and prepare for Christian leadership. With these goals in mind, we have the following school regulations:

CUP University reserves the right to modify existing academic policies or to develop additional policies regarding the relationship between the institution and those who enrol in its programs. This includes tuition and fee schedules, enrolment procedures and requirements, program and course offerings, graduation requirements, and registration policies and procedures.

Those admitted to study at CUP University agree, by virtue of their enrolment, to be governed by such policies as are established by the university's Board of Trustees and administration. As a result, the university maintains disciplinary authority over students as it pertains to continuation of enrolment by students, their award of academic credit, and the conferring upon them of degrees and certificates.

Orientation of New Students:

All new CUP University students are encouraged to attend orientation the week before classes start. During the orientation essential activities include academic advising, financial aid counselling, placement testing and registration.

Pre-Registration for Continuing Students

Semester 1 pre-registration for all current students is normally held in the last 2 weeks of semester 2, and Semester 2 pre-registration is held in the last 2 weeks of Semester of the same year. All students expecting to return for the next semester must meet with their major advisor before preregistering for the following semester's course work. It is the student's responsibility to be familiar with departmental requirements before preregistration.

Course Numbering and Pre-requisites

The three-letter abbreviation preceding a course number indicates the University's first initial letter (C) and the school of instruction or the general subject area of study.

For example: CMTh = Bible; CMTH = Mathematics, CCIS = Computing & Information Science; etc...

The three-number designation associated with each school and/or subject generally indicates the course level of study.

Students may not take upper division courses (second & third year) without first fulfilling lower division requirements or permission from the Major advisor for the program. The lower, sequentially-numbered courses are in most cases prerequisite to the higher.

Directed Study Option

In justifiable cases an upper division student may take one directed study course to satisfy a graduation requirement. Petitions are signed by the Academic Advisor and submitted to the Academic Affair Committee for approval.

Registration, Add/Drop

New students must register for classes prior to the first week of each semester. There is an "add/drop" period at the beginning of each semester. Admittance to a new course, however, is based upon available seating. Students must secure the faculty member's signature to add/drop courses. Courses dropped during the add/drop period will not appear on the student's permanent record. Alteration of a schedule without the approval of the Office of Records and Registration will not be recognised by the university. No student may enter a class or laboratory after the first meeting following the end of the add/drop period

Course Withdrawal

Students may withdraw from a course after the add/drop period is over. They must complete forms available through the Office of Admissions and Records.

Students must secure the course instructor and the Academic Advisor's signatures before withdrawing from a course. Completed withdrawal forms must be delivered to the main campus Office of Records & Registration no later than the last day designated to withdraw from classes. A grade of "W" will be recorded on the student's permanent record. Students who neglect to follow this procedure will receive grades of "F" on their permanent record.

Total Withdrawal from the University

Students who cannot continue their studies during a given semester must officially withdraw from the university. Withdrawals from school forms are available through the university's main administration office or the Office of Records & Registration. Students should confer with their instructors and/or advisors, complete the withdrawal from school form and obtain clearance from the library, the financial aid and business offices. Students who neglect to follow this procedure will receive grades of "F" on their permanent record.

Progress Toward a Degree or a Certificate

The time needed to complete the requirements for a degree or a certificate may vary, depending upon the student and his/her personal and academic circumstances. Many students choose to carry less than a full load for an academic semester. This may extend the time need to complete the academic programme. CUP University encourages students to work toward a degree or certificate at a pace that suits their circumstances.

Course Cancellation

The university reserves the right to cancel a course due to low enrolment, to change class times or class instructors, cancel classes or create new classes, and to alter any other policies or dates related to registration and student records at any time. Notification of such changes will be published in an appropriate manner.

Grade Change

When a student disagrees with the final grade of the course, that student may petition the University's Academic Committee for a review of their course grades. Grade change petitions will be allowed for up to one semester after the original grade was released.

Repeating Courses

Students may repeat a course previously taken in an attempt to improve a grade if the grade is lower than a "C". All grades, including the grade for the repeated course, will appear on the student's transcript. Students may request to have grade points previously earned recalculated to exclude the former grade and to reflect the current grade. No additional credit may be earned if the previous grade was a "C" or better.

Attendance & Tardiness

Students will be informed in writing of the instructor's attendance and tardiness requirements at the start of classes and will be required to adhere to those guidelines. Students are required not to miss more than 20% of the scheduled classes for the semester. Excused absences due to extenuating circumstances are left to the discretion of the instructor. Students are required to report to all classes on time.

Academic Integrity

Academic honesty is expected of all students. Each instructor will inform students in the beginning of each semester the academic integrity expectations and the consequences for violating of this standard.

In the event an instructor determines and substantiates a violation of academic integrity occurred such as plagiarism or cheating, the instructor may take appropriate disciplinary action reflected in the student handbook. This action can include a lowered or failing grade, probation, dismissal or other institution actions. Detailed explanations of possible consequences are outlined in the Student Handbook.

Plagiarism, as an example of a violation of Academic Integrity, is a form of theft. It is the stealing of another's ideas, information or words and passing it off as one's own. Examples of plagiarism include quoting from a published work without the use of quotation marks and identification of the author and copying from another student's examination or report. Instructors and Academic Advisors can answer any questions about plagiarism and strategies to avoid it. Students who know accomplice in the act of plagiarism are equally guilty of academic dishonesty.

Cross Registration

(Transferring Credit from another Institution)

Students who expect to enrol in a course at another institution while still planning to complete their degree at CUP University and who would like to insure the transferability of the course are encouraged to complete the Prior-Approval form, which is available through the main administration Office of Records & Registration. All courses for which prior approval is obtained are subjected to the standards and conditions of the CUP University Transfer Credit policy. All transfer students will have to attend CUP University at least a 2 semesters credits in order to gain a degree, etc.

VI. PROGRAMME ANALYSIS – RATIONALE FOR THE QUALIFICATIONS

Applied Mathematics: Certificate of Attainment (level 5), Diploma (level 5), Advanced Diploma (level 6), Bachelor (level 7), and Master (level 8&9).

Mathematics is one of the key to success in any field of studies in the classroom and working in the workplace. Having the right strategic mathematical mindset will make the work very effective, efficient, and productive. The applied mathematics language will further discuss in this M.Sc. degree programme. Here's a comparison of the mathematical science options:

	Certificate & Diploma	Advanced Diploma	Bachelor's	Master's
Who is this program for?	-Working professionals seeking refresher courses in mathematical science fundamentals -First time students seeking an understanding of basic mathematical science principles	- Students seeking an education covering a broad overview of mathematical science fundamentals	- Students who wish to acquire a survey of mathematics fundamentals and train in a specific area of mathematical science	- Students who want to learn more advances about the beauty of God in term of numbers language!
Common Career Paths	- Primary Math Teacher - Data Entry Clerk - Administrative Assistant	Secondary Math Teacher - Sales Representative - Bank Teller	- Sales Manager Assistant - Financial Analyst Assistant - Church Treasurer - Bank Teller	- Educational Administrator - Business Administrator - Mathematics Lecturer - Church Financial Officer
Time to Completion	1 year full-time	2 years full-time	3 years full-time	2 years full-time
Common Graduation Requirements	- 4 courses (certificate) - 8 courses (AA)	- 16 courses (Diploma)	- 24 courses (Bachelor)	13 course plus Project (45 points)
Prerequisites	- High School Form 6 & 7	- Associate of Arts in Mathematical Science level 5	- Diploma in Mathematical Science level 6	B.Sc.
Level	5	6	7	8 & 9

VII. PROGRAMME STRUCTURE

MAJOR IN MATHEMATICS

Full time students who are consistently taking four courses in per semester can complete his/her Applied Mathematics Programme in 2 consecutive years. To complete the M.Sc. you need to pass 13 courses plus project (45 points).

MASTER OF SCIENCE (MATHEMATICS ADMINISTRATION) RECOMMENDED COURSE SEQUENCES								
First Year								
Year ONE LEVEL 8	S-1	COURSE CODE	COURSE TITLE	CREDIT	S-2	COURSE CODE	COURSE TITLE	CREDIT
Postgraduate Certificate / Diploma		CMRM 811	Research Methodology	15		CMTH 825	Set Theory and Logic	15
		CMAP 812	Apologetics	15		CMTH 826	Algebra	15
		CMTH 813	Graduate Seminar in Mathematics	15		CMTH 827	Modern Complex Analysis	15
		CMTH 814	Number Theory	15		CMTH 828	Options	15
Second Year								
Year TWO LEVEL 9	S-1	COURSE CODE	COURSE TITLE	CREDIT	S-2	COURSE CODE	COURSE TITLE	CREDIT
Master		CMTH 911	Internship 1	15		CMTH 900	Dissertation	60
		CMTH 912	Internship 2	15				
		CMTH 913	Internship 3	15				
		CMTH 914	Internship 4	15				

NB:

- **Blue Courses – Compulsory courses**
- **Optional – Select 1 course from the list below.**
 1. CMTH - Combinatorial Geometry
 2. CMTH - General Topology
 3. CMTH - Advanced Statistics

DESCRIPTION OF COURSES

Course Code: CMRM 811

Course Title: Research Methodology

Creates a critical awareness of the diverse range of approaches and methods that are utilized when undertaking research in information technology and enables students to carry out their own research using appropriate methods in a rigorous manner.

Course Code: CMAP 812

Course Title: Apologetics

A philosophical study and defence of the Christian faith as it relates to natural science, humanism, reason, and experience. An emphasis is placed on the necessity of Christ's deity, His supernatural Incarnation, His substitutionary death, and His physical resurrection. The intent is to instil an ability to defend the faith from a philosophical and theological view.

Course Code: CMTH 813

Course Title: Graduate Seminar in Mathematics

A study of the fundamentals of research, preparation of a thesis proposal, thesis writing procedure, mathematical topics for research, and a selection of topics on pure and applied mathematics.

Course Code: CMTH 814

Course Title: Number Theory

A course on the divisibility properties of integers, congruences, diophantine equations, quadratic reciprocity, arithmetic functions, and algebraic numbers.

Course Code: CMTH 825

Course Title: Set Theory and Logic

This course demonstrates the development of mathematical thought through basic logical structures and the concepts of classes and sets, functions, relations, partially ordered classes, axiom of choice, and transfinite numbers.

Course Code: CMTH 826

Course Title: Algebra

The study of groups, group homomorphism's, Cayley's theorem, Lagrange theorem, permutation groups, and Sylow theorems.

Course Code: CMTH 827

Course Title: Modern Complex Analysis 1

This course examines real analysis: number systems, sets and functions, metric spaces, topological spaces, continuity, differentiation, and integration of functions. Analysis is the branch of mathematics that deals with inequalities and limiting processes, and is the theoretical background to calculus. The aim of the course is to give students a good background in the concepts and techniques of analysis with an emphasis on rigorous proof of major calculus results. 3 units A course on complex numbers and the complex plane, analytic functions, Cauchy-Riemann equations, infinite series, complex integration, singularities, improper integrals, Cauchy integral theory, singularities, and residue theory.

Optional: Select 1 course from the 3 courses below:

Course Code: CMTH

Course Title: Combinatorial Geometry

A course that provides an introduction to linear spaces, projective spaces, affine spaces, polar spaces, and generalized quadrangles.

Course Code: CMTH

Course Title: General Topology

A study of basic topological concepts such as sets, metric spaces, topological spaces, continuous mappings, separability, compactness and topological properties.

Course Code: CMTH

Course Title: Advanced Statistics

A course on the fundamentals of measure theory, probability space, random theory, random variables, expectation, independence, characteristic functions, convergence concepts, conditioning, and martingales.

Course Code: CMCP 8210

Course Title: Christian Philosophy

In every area of study, CUP wants to help parents train their children to understand God's perspective and think His thoughts after Him. To do this, they must grow in their knowledge of the Word of God and learn the mind of Christ. They must learn to reason in terms of biblical truth, and develop a truly consistent biblical worldview. By godly instruction and precept, through the inculcation of scriptural wisdom, students are to develop their God-created minds unto Christian maturity. They must be taught how to rightly discern and judge all things in the light of Scripture. Christian education fails if it does not instill the pattern of thinking after God's words and logic. If a student learns to think in terms of himself or the creature, his decisions regarding right and wrong, truth and error, reality and fantasy, will be humanistic or naturalistic. Without realizing it, he will be acting as his own god, determining for himself good and evil (Genesis 3:5). Committed to the Bible as the standard for education, CUP desires to interpret it in line with the historic Christian faith and biblical principles.

Biblical Foundation:

The CUP program is committed to an educational philosophy which is not after the traditions of men, or the principles of this world, but after Christ, in whom are hidden all the treasures of wisdom and knowledge (Colossians 2:8). Christian education means that Christ is central to education. Consequently, our educational theory, methods, and practice must be built upon Christ as their cornerstone. But how can we know Christ apart from His Word which is the truth? The sacred Scriptures are the Word of Christ written. In them God has revealed Himself and His saving purpose in Christ.

Because there is only one God and one Christ, there is only one truth. This truth is the centre and criterion of Christian education. While the Bible is not used as the textbook in every subject, it is the foundational handbook for every course and the standard for teaching. As the foundational book, Scripture is the only infallible rule for faith and practice, for grammar and literature, for mathematics and science, for health and physical education, for geography and history, and for social studies and the arts. The beginning of wisdom is the fear of God.

Biblical Principles:

In order for education to be consistently Christian the teacher must self-consciously teach all subjects in the framework of biblical authority. To accomplish this we must have a methodology that guarantees its biblical character. The proper method is to use the Bible in each and every course both directly and indirectly. It is applied directly when we derive our understanding of each topic from the actual statements of the Bible, and use the text of Scripture appropriately in each subject. It is applied indirectly as we work out the implications of biblical truth as the proper framework for understanding each subject.

Biblical doctrines must regulate the way we teach and learn. One important goal of Christian education is to teach the student to reason biblically. Because of this, the educational process must show how the doctrinal truths of

God's Word provide the Christian worldview. This worldview is a unified system of principles that guides the way we educate. It requires that every thought be made captive to the obedience of Jesus Christ (2 Corinthians 10:5).

Course Code: CMTH 900

Course Title: Dissertation (60 points)

Demonstrates a capacity for independent research project, conducted under supervision, and an ability to critique prior work and define, design and conduct research in a rigorous and robust manner, and to deliver a substantial piece of original high-quality work which significantly enhances aspects of the body of knowledge in the chosen research project domain.

VIII. ASSESSMENTS

During your course, you will have a number of assessments. You will be expected to turn in high quality work, of the same standard that will be expected of you in a work situation. All assessments must be submitted in English only.

Return of Assessments

Marked assessment items will be retained for three months after the date of the assessment. During that period students may contact their lecturer during working hours to collect them.

Assignments

These must be handed in by the date set by your lecturer. Your assignments are to be put into the "letter box" on the wall of CUP University's central office **prior to 8:30am on the due date**.

Electronic submission of a copy of the paper based version is required for **ALL** assignments. This copy will be used as a **backup** for the paper based version and can also be used for originality check and must be submitted prior to 8:30am on the same due date as the paper version. Any such requirement will be communicated with the assignment. Failure to submit assignments in the required format(s) may result in no marks being awarded.

Assignments which are submitted up to one day late (Monday after 8:30am to Tuesday 8:30am) will be marked, but cannot achieve more than a C- (pass only) grade. Assignments handed in late will not be marked unless Special Assessment Circumstances apply, so it would be better to hand in an incomplete assignment **on time**. All assignments **must** have a cover sheet accompanying them. The format for this sheet can be obtained from your lecturer. All assignments **must** be handed in "folders" with a clear plastic front and your papers **fastened** inside (plastic sleeves are not acceptable). Assignments containing disks or CD's are to be submitted in either a binder wallet, document wallet, or sealed envelope. A cover sheet must be attached to the outside so it is clearly visible. Later on you may need to buy more folders to handle multiple assignments. These folders will be returned to you with your assignments when they have been marked. This could take up to three weeks.

Paper for printing by students must be supplied by the students. Please do not ask your lecturer to supply paper as this is against our University's policy.

If a disk is included in an assignment, it must be **clearly labelled, virus free and readable** using software on the University's file server or it will not be marked.

As previously stated, your assessments are expected to reach the quality your prospective employers will expect of you. This means they will conform to the rules stated above, be logically set out, and neatly presented. Your assignment will not be corrected unless it achieves this, and it will be marked accordingly. Make sure that you **keep a copy** in case it is needed.

Assistance to Other Students

Students themselves can be an excellent resource to assist the learning of fellow students, but there are issues that arise in assessments that relate to the type and amount of assistance given by students to other students. It is important to recognise what types of assistance are beneficial to another's learning and also what types of assistance are acceptable in an assessment. The CUP University Academic Statute governs the conduct of assignments and examinations, and violations of the standards will result in disciplinary action.

Beneficial Assistance

- Study Groups
- Discussion
- Sharing reading material
- Testing another student's programming work using the executable code and giving them the results of that testing.

Unacceptable Assistance

- Working together on one copy of the assessment and submitting it as own work
- Giving another student your work
- Copying someone else's work. This includes work done by someone not on the course
- Changing or correcting another student's work
- Copying from books, Internet etc. and submitting it as own work

Copyright within your Assignment

You can:

- Copy *insubstantial* portions of items
- Copy for research or private study
- Print one copy only

You cannot:

- Copy for permanent electronic storage
- Copy and paste extracts or images into your own work or website
- Make multiple copies
- Upload copies to user groups and bulletin boards."

Acknowledgement of Sources

Anything taken directly from another source must be acknowledged correctly. In particular, see the topic of Referencing: "To learn how to reference is extremely important in order to acknowledge sources of information and ideas; this is a legal and academic requirement. It also enables readers to judge the extent of your research and to locate and find further information in the sources you have referred to, if they wish."

Use of CUP University's Logo within your Assignment

Use of the CUP logo is not permitted on assignments. The CUP logo is for CUP University's documents and only for the use of the University's staff.

IX. TESTS/EXAMINATIONS

- You should be seated in the exam room by the official start time for each exam. Rooms are usually opened for entry 10 minutes prior to this time.
- You must go to the exam room and time allocated to the class you are **enrolled** in. If there is a need to change, you must apply at the University's Central office at least five days in advance.
- IDs are checked upon entering the room and students must sign a class roster, before being seated.
- All bags / papers (including pencil / spectacle cases / Mobile phones and other electronic devices) are to be turned off and left at the end of the room, nearest to the door. Examination stationery is supplied unless advised. You are not permitted to use your own stationery, even as scrap paper.
- Use of dictionaries in examinations is not permitted.
- No food or drink is permitted during examinations.
- Admittance to exams is by Student ID card which are to be placed on the top of the desk nearest the aisle at all times during the exam where the supervisor can easily read it. Remove from wallet or billfold.
- Once seated you may write your name and Student ID number on the exam answer booklet.
- At the commencement of the exam, reading time may be allowed (if so, it will be stated on the paper). **During reading time, NO WRITING, highlighting or marking is allowed.** This means no writing during reading times.
- No talking or communicating in any way with others is permitted, except to the supervisor (raise your hand).
- Only writing implements are allowed on desks during the exam unless specified on the exam sheet. Pencil cases are not permitted on desks.
- Make sure your name is on the front of the exam answer booklet. No extra time is allowed to do this after the exam time is finished.
- Write as legibly as you can. Do not use pencil. Use a blue or black pen only.
- Please ensure mobile phones are switched off and placed in your bag at the end of the room, nearest the door.
- No student shall be allowed to enter the room without obtaining the permission of the supervisor.
- No student shall be permitted to leave the room without obtaining the permission of the supervisor and handing in his or her script.
- If you are found with any additional material this is considered to be a dishonest practice and a breach of the rules relating to the conduct of examinations. Any dishonest practice occurring in the submission of

work will result in disciplinary action, which could result in exclusion from any programme within CUP University.

- You must stay seated until **all** papers are collected.
- If an existing medical condition or extenuating circumstances are likely to affect your ability to sit an examination under these conditions you must apply, in writing to the Programme Leader, at least seven (7) days prior to the examination date.

Credit Recognition and APL

Credit Recognition is a way of acknowledging the courses you have already been assessed in. These are compared against your new courses to see if they match.

Credit Recognition application forms are available from Student Central office. There is an administration charge per application. Please ensure you enclose certified copies of evidence of course content to support your application.

All credit recognition must be verified before the programme begins.

If you are applying for credit entirely on the basis of previously assessed courses from another education provider or another School or Faculty within CUP University, then follow the **Credit Recognition** procedures. If you are applying (at least partly) on the basis of work experience or other unassessed work, follow the **Assessment of Prior Learning (APL)** procedures. Charges will apply to both cross credits and APL.

Cross Credits

Check the course prescriptions, full details are available from Student Central office to find out which credit recognition you will be applying for.

Bring all your original academic records and course outlines to this meeting (overseas qualifications must be TNQAB certified before your application can be considered). If you do not wish to wait for the meeting, move to the next step.

Complete an application form and pay the fee.

Assessment of Prior Learning (APL)

You may be coming to CUP University with skills, knowledge, attitudes and values which have not been formally assessed. APL offers you the means by which these can be assessed and given credit towards your programme.

Advice Regarding Credit Recognition and APL Approvals

You will be advised in writing of the success or otherwise of your application. You may be given preliminary confirmation of the result of your application within a short time frame, but the official confirmation will only come when the results are approved by the Programme Committee, which meets approximately two weeks after the end of each semester for that purpose.

Results and Academic Records

We recommend that you keep a record of your results and check them against the official results published on notice boards. It is the student's responsibility to ensure results are recorded correctly. Do not leave queries until it may be too late to fix problems in time for graduation. Academic results are sent out each semester. An academic transcript of your grades will be prepared by the Registry on receipt of the appropriate form (available from CUP University's Student Central office) and a small cost recovery charge.

X. GRADING SYSTEM

CHRIST'S UNIVERSITY in PACIFIC CURRICULUM AND ASSESSMENT AUTHORITY (CUPCAA)

CUPCAA issues the official statements of results to students. It is a cumulative record of all results for the student. Christ's University in Pacific is undertaking the 15.0 grading system for all students. Results for units in transferred to and attained from CUP studies are reported and follow the following grading system.

Numerical Score	Letter Grade	Grade Points	Achievement Level
90 – 100	A ⁺	15.0	Excellent
85 – 89	A	14.0	Outstanding
80 – 84	A ⁻		
75 – 79	B ⁺	13.0	Above Average
70 – 74	B	11.0	
65 – 69	B ⁻		
60 – 64	C ⁺	9.0	Average
55 – 59	C	7.5	
50 – 54	C ⁻		
40 – 49	D	5.0	Below Average
Below 40%	F	0.0	Failing

Other grades that may be awarded to a candidate apart from those above, are as follows:

CT	Credit Transfer awarded following the assessment of previous learning. (Earned Points to be awarded by the head of the Department of Mathematics)
Res. Pass	Restricted pass which does not permit a Candidate to proceed to a further stage in that subject's Course of Study.
Aeg. Pass	Aegrotat consideration in respect of illness or injury.
Comp. Pass	Compassionate Pass in consideration for unavoidable circumstances.
DNS	Did not sit the final exam (Final grade is F with Earned Points of Zero.)
WC	Withdrawal from Course before the deadline.
W	Withdraw from the University
I	Incomplete

The following grades shall not be included in the calculation of the GPA. They are Aeg. Pass, Comp. Pass, P, Q and W.

XI. EXAMPLES OF ACADEMIC MISCONDUCT ARE:

Plagiarism

Plagiarism is the presentation of the (unpublished or published, including on the Internet) thoughts, ideas, writings, inventions or work of another person or other persons without proper acknowledgement and includes copying of the whole or part of the work of another, whether directly copying or summarising another's work, and using experimental results obtained by another. It is the act of taking and using another's work as one's own without proper acknowledgement (referencing) and includes:

- a) copying the work of another student
- b) directly copying any part of another author's work
- c) summarising or paraphrasing another author's work without referencing
- d) using experimental results obtained by another without referencing

This includes items from books, journals, magazines, and the internet. If you have any questions or are in any way unclear on what is or is not acceptable, then contact your lecturer for that course.

Cheating

Cheating is any fraudulent or dishonest response or practice in relation to any item of assessment, including any action which may otherwise defeat the purpose of the assessment. For example, this includes copying from others for an individual assessment event or bringing notes to a closed book exam.

The above summative assessment offences (plagiarism and cheating) represent misconduct and a breach of CUP University's rules and policies.

Exclusion from Programme

There are provisions to exclude students from programmes because of insufficient progress (passing less than half the credits taken over two years),

Change of Course or Programme

Students who request a change of course or programme after approval of enrolment will incur a penalty fee.

Evaluations

The student evaluation of quality, "SEQUAL", will independently and systematically enable students to evaluate courses and teaching. Evaluations are confidential.

Testimonials

Verbal references only will be given. Students need to advise lecturers of the details regarding such references.

XII. SCHOOL OF SCIENCE: FACULTY OF MATHEMATICS DIVISION

Dean of School of Science: Lecturer: Associate Professor Viliami Takau (P.hD.)

- Senior Lecturer in Physics & Mathematics
- B.Sc. (Bachelor of Science - Physics) La Trobe University, Melbourne, Australia.
- M.Sc. Hons. (Master of Science - Physics), Melbourne University, Australia
- Ph.D. (Doctor of Philosophy – Nuclear & Atomic Energy.) Melbourne University, Melbourne, Australia

Visiting Professor: Emeritus Professor Jeffrey Hunter (P.hD.)

Mathematician and Statistician:

- Massey University, Palmerston North, NZ
- Auckland University of Technology, Auckland, NZ

Lecturer: Mr Tu'amelie Faitu'a

- Dip.Ed. (Diploma in Education) T.I.O.E., Tonga
- B.Sc. (Bachelor of Science major in Mathematics and Physics) USP, Fiji
- Work Experience: Teaching mathematics and physics in High School for almost 30 years.
- Work Experience: Administrator for over 20 years
- PG.Cert., (Postgraduate Certificate in Mathematics Administration), CUP University, Nuk., Tonga

Lecturer: Rev Nehemaia Kakaufaka'atu'i

- Dip.Ed. (Diploma in Education) Tonga Institute of Education (T.I.O.E), Tonga
- B.Sc. (Bachelor of Science major in Physics) USP, Fiji
- Work Experience: Teaching Mathematics and Physics in High School for almost 30 years.
- Work Experience: Administrator for over 20 years.
- PG.Cert. (Postgraduate Certificate in Mathematics Administration) Christ's University in Pacific, CUP, Tonga.

Lecturer: Dr. Langitoto Helu (P.hD.)

Assistant Lecturer: Mr Peni Lakai

- Dip.Ed. (Diploma in Education) T.I.O.E., Tonga
- B.Sc. (Bachelor of Science major in Mathematics) USP, Fiji
- M.CS (Master of Cyber Security), CUP University, Nuk., Tonga
- Master of Science in Applied Mathematics candidate, CUP University, Nuk., Tonga