PART-TIME TEACHING ELIGIBILITY LIST APPLICATION

Never Stand Still | Science | School of Mathematics and Statistics

This form is **only to be used** by individuals seeking to be placed on the School of Mathematics and Statistics part-time teaching eligibility list. Applicants who already have previous teaching experience with the school should instead fill out the pink **APPLICATION FOR PART-TIME TEACHING** form available from the School of Mathematics and Statistics General Office (Red Centre 3070).

SURNAME: …… FIRST NAME: ……

HOME ADDRESS: ……..

E-MAIL ADDRESS: ……

PHONE NUMBERS: ……

MATHEMATICAL QUALIFICATIONS: ……

……

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RELEVANT EXPERIENCE: ……

……..

……..

PRESENT EMPLOYMENT (INCLUDING OTHER PART-TIME WORK): ……

……..

……

CURRENT RESEARCH PROGRAMME OR COURSE: ……

……

Please complete the above form and return it together with a current *curriculum vitae* to the School of Mathematics and Statistics General Office (Red Centre 3070) or the casual staff liaison officer Mr. Peter Brown (Red Centre 3073) Ph:9385 7055 peter@unsw.edu.au.

Keep a copy for your own records **PLEASE TURN OVER**

In order to be eligible to teach in the School of Mathematics and Statistics you will be required to successfully present a short demonstration tutorial to a small group of staff members.
Details are attached.

ONCE YOU ARE ON THE ELIGIBILITY LIST

- You must fill out a pink application for part-time teaching form available from the School of Mathematics and Statistics General Office (Red Centre 3070). Read this application form carefully and return it to Milan Pahor.
- Being on the eligibility list does not guarantee employment.
- You will need to attend a briefing on Friday of Week 1 of session. (Details from Peter Brown)
- If you are given classes you will be given a pigeon hole in the School's mail room (Red Centre 3080). Initial information and roll books will be placed in your pigeon hole and all subsequent information and handouts will come through the mailroom for the remainder of the session.
- The School has an ongoing mentoring program for all new tutors. (Details from Peter Brown)

Milan Pahor
School Timetabling Officer
Ph 9385 7059
m.pahor@unsw.edu.au

Demonstration tutorials by new tutors

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The School of Mathematics and Statistics takes the teaching of first year students very seriously. For many students, the tutorial is their 'life-line' and it is very important that our tutorials are of a high standard.

With this in mind, we require that everyone applying to tutor in First Year Mathematics who has not been previously employed by us, should give a short demonstration tutorial to a couple of experienced staff members.

This 'demonstration' consists of presenting, as if to a class, two problems: one in Algebra and one in Calculus, selected by you from a list of 12 questions given below. These questions are the normal types of problems a tutor would be expected to explain to a MATH1131 class.

PLEASE CONTACT ME, at peter@unsw.edu.au, or by phone 9385 7055, so we can arrange a mutually convenient time for the Demonstration Tutorial. We would like to get these all done prior to Week 1 of Semester.

You should see the demonstration tutorial not just as a way of assessing your suitability as a tutor, but also as a means of getting useful feedback and assistance in your teaching. We are not necessarily looking for 'expert' teachers, but rather for people who have a basic grasp of teaching techniques and a willingness to adapt, learn and develop in their teaching.

Although the demonstration tutorial is somewhat artificial compared with facing a class of 30 students, you should try to think of the (small) audience in the same way as you would a class, that is, assume that they do not already know the material and explain it as you would to a class of students.

All part-time tutors will need to attend a briefing on Friday of Week 1 of Semester to receive information on administrative matters, and all new tutors will receive some further information on matters relating specifically to teaching. There will be ongoing support for all new tutors, including a visit to your tutorial by an experienced member of staff to give you further advice and encouragement.

Peter Brown
Director of First Year Studies
School of Mathematics and Statistics

LIST OF QUESTIONS:

You should select ONE of the following CALCULUS questions:

1. Discuss the behaviour of $f(x) = \frac{|x^2-4|}{x-2}$ as $x \to 2^+$, $x \to 2^-$ and $x \to 2$.
2. Find the limit as $x \to \infty$ for $f(x) = \dfrac{5x^2 - 3x + \cos 7x}{4 + \sin 2x + x^2}$.
3. For each $\epsilon > 0$, find an M such that for all $x > M$, $\frac{x^2+1}{x^2}$ is within ϵ of its limit as $x \to \infty$.
4. Use the mean value theorem to show that $\ln(1+x) < x$ for $x > 0$.
5. Find
$$\lim_{x\to\infty} \frac{\ln(x^3+1)}{\ln(x^2+1)}.$$
6. If
$$y = \int_x^{x^3} \sin(t^2)\, dt$$
find $\frac{dy}{dx}$.

You should select ONE of the following ALGEBRA questions.

1. Find the polar form for $z = \sqrt{3} - i$ and hence find the '$a + ib$' form for z^7.
2. Use the method of complex numbers to express $\cos^4\theta$ in terms of cosines of multiples of θ.
3. Find all the solutions of $x^6 = 64$ and hence write $x^6 - 64$ as a product of linear factors, and as a product of linear and quadratic factors with real co-efficients.
4. Find the parametric vector form of the line through $\begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix}$ parallel to the line joining the points $\begin{pmatrix} 2 \\ 2 \\ 1 \end{pmatrix}$ and $\begin{pmatrix} 7 \\ 1 \\ 3 \end{pmatrix}$.
5. Is the vector $\begin{pmatrix} 1 \\ 3 \\ 2 \end{pmatrix}$ in span$\left\{ \begin{pmatrix} 2 \\ 1 \\ 3 \end{pmatrix}, \begin{pmatrix} -1 \\ 3 \\ 4 \end{pmatrix} \right\}$?
6. Find the projection of the vector $\begin{pmatrix} 2 \\ 1 \\ -3 \end{pmatrix}$ onto a vector normal to the plane
$$2x_1 + 2x_2 - 3x_3 = 4.$$