

Advances in Applied Probability

The Editorial Board would like to encourage the submission to the *Advances* of Review Papers summarising and coordinating recent results in any of the fields of Applied Probability. The papers should be approximately 40–50 printed pages in length. On acceptance of a Review Paper for publication in the *Advances*, the author will receive £stg. 100 (U.S. \$240).

In addition to these Review Papers, *Advances* is also designed to be a medium of publication for (1) long research papers in Applied Probability, which may include expository material, (2) expository papers on branches of mathematics of interest to probabilists, (3) papers outlining areas in the biological, physical, social and technological sciences in which probability models can be usefully developed, and finally, (4) papers in Applied Probability presented at conferences which do not publish their proceedings.

In short, the main function of *Advances* is to define areas of recent progress and potential development in Applied Probability. As with the *Journal of Applied Probability*, *Advances* undertakes to publish papers accepted by the Editors within 15 months of their submission.

The Editorial Board consists of E. Sparre Andersen, D. Blackwell, B. Gnedenko, J. Hájek, E. J. Hannan, D. G. Kendall, J. F. C. Kingman, K. Krickeberg, R. M. Loynes, P. A. P. Moran, J. Neveu, K. R. Parthasarathy, R. Pyke, C. A. B. Smith and L. Takács. The Editor-in-Chief is J. Gani, and the Editorial Office of the *Advances* is in the Department of Probability and Statistics, The University, Sheffield, S3 7RH, England.

Volume 3 No. 2 of *Advances* contains the following papers:

WHO Symposium on Quantitative Epidemiology

- | | |
|--|---|
| D. S. Reynolds and
I. R. Savage | Random wear models in reliability theory |
| E. Kyprianou | The virtual waiting time of the $GI/G/1$ queue in heavy traffic |
| D. L. Iglehart | Functional limit theorems for the queue $GI/G/1$ in light traffic |
| K. S. Fahady, M. P. Quine
and D. Vere-Jones | Heavy traffic approximations for the Galton-Watson process |
| A. G. Pakes | A branching process with a state dependent immigration component |
| J. Keilson and S. Subba Rao | A process with chain dependent growth rate — Part II: The ruin and ergodic problems |
| J. Gani and D. R. McNeil | Joint distributions of random variables and their integrals for certain birth-death and diffusion processes |
| R. E. Miles | Isotropic random simplices |
| R. Ahlswede and
J. Wolfowitz | Channels without synchronization |
| H. G. Tucker | On asymptotic independence of the partial sums of positive and negative parts of independent random variables |

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For a descriptive leaflet, rates of subscription, and order form, application should be made to

The Oxford University Press, Walton Street, Oxford.

Mathematical Spectrum is published by Oxford University Press on behalf of the Applied Probability Trust.

THE ADVANCED INSTITUTE ON STATISTICAL ECOLOGY IN THE UNITED STATES TO BE HELD AT PENN STATE DURING JUNE–JULY, 1972

1. *Support and Sponsorship*: With the financial support of the National Science Foundation, an Advanced Institute on Statistical Ecology in the United States will be held at the Pennsylvania State University during 19 June 1972–28 July 1972 under the joint sponsorship of the International Statistical Institute and International Association of Ecology. The present Institute is one of the several Advanced Institutes on Statistical Ecology Around the World proposed by the Statistical Ecology Section of the International Association of Ecology. The members of the council are: D. G. Chapman, D. R. Cox, B. Matérn, G. P. Patil (Chairman), E. C. Pielou, C. R. Rao, D. S. Robson and J. G. Skellam.

2. *Purpose and Nature*: The purpose of the Advanced Institute is basically to provide advanced and specialized education and research training on important topics in statistical ecology such as modeling and simulation of biological populations, chance mechanisms and statistical distributions in ecology, measurement and detection of spatial patterns, sampling biological populations, multivariate methods in ecology, quantitative population dynamics and systems analysis in ecology. A major emphasis will also be given to the individual study, individual problems and consultations, seminars by participants, small group discussions and workshops.

3. *Selection of Participants and Criteria of Eligibility*: Preference will be given to the graduate faculty, post-doctorals, advanced graduate students and research scientists involved in statistical ecology and having to their credit each of the following or the equivalent before the beginning of the institute:

- one year of calculus, one year of probability and statistics,
- one year of biology and ecology, one course in linear algebra,
- one course in computer programming.

The participants will be selected from across the country on the basis of merit. A selection committee will screen the applications and select the participants. The National Science Foundation has provided funds for support of the participants.

4. *Instructional Staff and Guest Lecturers*: Invitations are being sent out to the prospective instructional staff and the guest lecturers. The National Science Foundation has provided funds to cover travel and the salaries and/or honoraria for the invitees.

5. *Request for Literature on Statistical Ecology*: A comprehensive library of reprints, technical reports, lecture notes, books, dissertations, etc., concerning the subject matter of statistical ecology will be organized to add to the effectiveness of the advanced institute. One or two copies of the relevant material would be very welcome.

6. *Further Information and Suggestions*: Write to Professor G. P. Patil, Director, Advanced Institute on Statistical Ecology, 330 McAllister Building, University Park, Penn., 16802, U.S.A.

Monographs on Applied Probability
and Statistics from Chapman & Hall

APPLICATIONS OF QUEUEING THEORY

G. F. Newell, Professor of Transportation Engineering,
University of California, Berkeley, California

1971 : 412 10770 8 : $8\frac{3}{4} \times 5\frac{1}{2}$ ins : 158 pp : 18 illustrations : £ 2.40 net

This monograph is the basis of a course given annually to transportation engineers at the University of California. The author's aim is to suggest methods for reaching approximate solutions to real problems, which typically can be neither formulated nor solved exactly, rather than giving a survey of known solutions to hypothetical situations. In formulating and analysing queueing systems, emphasis is placed on graphical methods of representation and deterministic fluid approximations. Also included is a section on diffusion approximations for the analysis of stochastic effects. Particular attention is given to the behaviour of systems having a time-dependent characteristic of a 'rush-hour', in which the input temporarily exceeds the output.

As queueing theory is an interdisciplinary subject, this book should also be useful to students in departments of industrial engineering, operational research and statistics.

QUEUES

D. R. Cox, Professor of Statistics, Imperial College,
University of London, and **Walter L. Smith**, Associate
Professor, University of North Carolina

1961 edition reprinted with limp binding 1971 : $7\frac{1}{4} \times 4\frac{3}{4}$ ins : 412 10930
1 : 192 pp : illustrated : limp : £ 1.05 net

The first available broad introduction to the theoretical methods used in studying systems involving congestion and queueing. The book will prove useful both to students and workers in probability and statistics who want a short introduction to the problems of this special field, as well as to the operational research worker who is concerned with practical investigations of queueing.

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Members of the London Mathematical Society should apply direct to the Secretary of the Society for copies of the *Journal*.

All enquiries about the *Journal*, as well as other subscriptions and orders for back numbers should be sent to the Editorial Assistant, Miss M. Hitchcock, Department of Probability and Statistics, The University, Sheffield, S3 7RH, England. The price per volume of back numbers is \$19.50, £stg. 8.00, \$A. 17.00 for Volumes 1 to 4, and \$27.00, £stg. 11.25, \$A. 24.20 from Volume 5 onwards. Cheques, money orders, etc. should be made out to *Applied Probability*; cheques on U.S., U.K. and Australian banks will be acceptable.

Notes for Contributors

It is a condition of publication in the *Journal of Applied Probability* that papers shall not previously have appeared elsewhere and will not be reprinted without the written permission of the Trust. The copyright of all published papers shall be vested in the Trust. It is the general policy of the *Journal* not to accept for publication papers which cannot appear in print within 15 months of their date of submission. Authors will receive 100 reprints of their papers free, and joint authors a proportional share of this number. Additional reprints will be provided at cost.

Manuscripts should be written in English or French; manuscripts in other languages may be accepted by the Editors, but will appear (subject to the author's agreement) in English or French translation in the *Journal*.

It will be of help to the Editors if the following conventions are adopted:

a) The manuscript should be typewritten, using double spacing, on one side of the paper only. The original and a copy may be submitted to any Editor; a duplicate of the covering letter should, however, be sent to the Editor-in-Chief.

b) References should be indicated in the text by the name of the author(s) and the date, thus: Feller (1961), and the full references listed at the end of the article in alphabetical order. Journal references should include the title of the article cited, the title of the journal (abbreviated in the style of the *International Journal of Abstracts: Statistical Theory and Method*) the volume, and inclusive page numbers. Book references should give the full title, the publisher, and the place of publication. For example:

Feller, W. (1961) A simple proof of renewal theorems. *Comm. Pure Appl. Math.* **14**, 285–293.
Robinson, E. A. (1959) *An Introduction to Infinitely Many Variates*. Griffin, London.

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Bold-face capitals (**T**, **I**, **R**) and lower case letters (**t**, **i**, **r**) should have a curly underline, e.g., T, I, R, t, i, r.

Greek characters (α , β , θ) and script letters (\mathcal{J} , \mathcal{I} , \mathcal{R}) should be carefully drawn and identified when first used by a marginal note of the form ' α —lower case Greek alpha' or ' \mathcal{R} —script R'.

d) Indices and subscripts should be clearly distinguished, using the marking \downarrow_4, \uparrow_4 where necessary.

Authors will receive only first proofs for correction; charges will be made for excessive alteration to these.

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CONTENTS

Volume 8

Number 4

December 1971

Research Papers

- | | | |
|---|-----|--|
| EDWARD POLLAK | 633 | On survival probabilities and extinction times for some branching processes |
| M. L. SAMUELS | 655 | Distribution of the branching-process population among generations |
| P. J. STAFF AND M. K. VAGHOLKAR | 668 | Stationary distributions of open Markov processes in discrete time with application to hospital planning |
| JÁNOS GALAMBOS | 681 | On a model for a fair distribution of gifts |
| LAJOS TAKÁCS | 691 | Discrete queues with one server |
| EMLYN H. LLOYD | 708 | A note on the time-dependent and the stationary behaviour of a semi-infinite reservoir subject to a combination of Markovian inflows |
| A. E. GIBSON AND B. W. CONOLLY | 716 | On a three-state sojourn time problem |
| MARK PINSKY | 724 | Recurrence for Markov processes on N lines |
| A. J. LAWRANCE | 731 | Selective interaction of a Poisson and renewal process: the spectrum of the intervals between responses |
| JAMES PICKANDS III | 745 | The two-dimensional Poisson process and extremal processes |
| G. S. MARLISS AND J. R. MCGREGOR | 757 | The construction of limiting distributions of response probabilities |
| E. J. HANNAN | 767 | Non-linear time series regression |
| S. I. RESNICK | 781 | Products of distribution functions attracted to extreme value laws |
| MORRIS L. EATON, CARL MORRIS AND HERMAN RUBIN | 794 | On extreme stable laws and some applications |

Short Communications

- | | | |
|---|-----|--|
| HOWARD G. HOCHMAN AND STEPHEN E. FIENBERG | 802 | Some renewal models for single neuron discharge |
| EDWARD A. BRILL | 809 | Point processes arising in vehicular traffic flow |
| J. GANI AND J. LEHOCZKY | 815 | An asymptotic result in traffic theory |
| J. W. COHEN | 821 | On the busy periods for the $M/G/1$ queue with finite and with infinite waiting room |
| ASHA SETH KAPADIA | 828 | The general N server finite queue |
| İZZET ŞAHİN | 835 | On the single server queue with preemptive service interruptions |
| ARTHUR NÁDAS | 838 | Times to intermittent and to permanent failures as Brownian crossing times |
| M. PAGANO | 841 | Some asymptotic properties of a two-dimensional periodogram |