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CATALOG DESCRIPTION FOR POSTAL STUDENTS IN DEPARTMENT OF
RADIATION BIOLOGY*, 1950-51

OSD1.950209.028

141 and 142 Statistical Methods

Credit three hours each term

An introduction to the more common statistical techniques utilized in summarizing and drawing conclusions from experimental data. The following topics are covered: The chi-squared test, the t-test, simple and multiple correlation, linear regression, analysis of variance and covariance, experimental designs.

191 Survey of Radiological Physics

Credit two hours.

A short course offered to students not having sufficient background in physics and mathematics for Radiation Biology 209, and intended primarily for physicians and graduate students wishing to obtain background for Radiation Biology 232, 252, and 210. Will not carry graduate credit in the Radiological Physics curriculum.

209 Basic Radiological Physics

Credit four hours.

This course is offered at the outset of study in the Radiological Physics curriculum and examines in some detail the basic properties of various types of high energy radiations and their interaction with matter. The fundamentals of radiation measurement and basic instrument design are discussed in lectures and laboratory. The course is intended to supplement academic physics training by emphasizing those features of most importance to radiation biology and medicine. Prerequisites: undergraduate degree in physical sciences, or engineering, or equivalent training in physics.

210 Practical Radiological Physics

Credit three hours.

Offered at the conclusion of the first year this course introduces the student to practical problems in special instrumentation, monitoring, shielding, design and construction of laboratories and plants, x-ray installations, waste disposal, sampling techniques, and the safe operation of high energy and high capacity installations. Extension of this training may be obtained at an A.E.C. operating site. Prerequisites: Industrial Hygiene and Toxicology, Radiation Biology 232, and either Radiation Biology 191 or 209 or their equivalent.

CATALOG DESCRIPTION FOR FORMAL COURSES IN DEPARTMENT OF
RADIATION BIOLOGY*, 1950-51 (Continued)

221-222 Biophysics Seminar

Credit four hours.

Designed to ensure acquaintance with the pertinent literature of the field of biophysics. Participants will report orally on topics selected in consultation with the instructor, and in addition provide written summaries and bibliographies.

232 Biological Effects of Radiation

Credit four hours.

A survey is made of the effects of ionizing radiations on living systems and on constituents of body fluids and cells. Emphasis is placed upon changes occurring in mammals and their bearing on the problem of human exposure. The biological basis for radiation tolerance estimates are discussed in detail, and special problems arising in connection with the entrance of radioactive materials into the body are studied. Genetic effects of radiation are taken up in cooperation with the Department of Biology.

Prerequisites: college biology, Radiation Biology 191, 209 or equivalent.

241 and 242 The Principles of Statistical Inference.

Credit one hour each term.

The description of frequency distributions. The characteristics of "good" methods of statistical estimation and of testing hypotheses. The relation between statistical methods and experimental research.

252 Introduction to Tracer Chemistry

Credit two hours.

Lectures and laboratory experience are offered in the fundamental design of experiments involving stable or radioactive isotopes, practice in their measurement, isotope separation techniques, and the synthesis of labelled compounds. A brief survey of health protection measures will be included for those not registered for the Radiological Physics curriculum. Background in organic and physical chemistry is desirable but not required. Students with less preparation must obtain permission before registering.

CATALOG DESCRIPTION FOR NORMAL COURSES IN DEPARTMENT OF
RADIATION BIOLOGY*, 1950-51. (Continued)

260 Industrial Physiology

Credit three hours

Physiological problems of particular importance in industrial medicine are studied, largely by the seminar method in collaboration with the Departments of Medicine and Physiology. Topics include pulmonary and circulatory physiology, particularly with reference to the pneumoconiosis and dust problems in general, special toxic gas problems, physiological factors in the design and use of protective equipment, problems of work in hot environments, fatigue, etc. Human physiology and an interest in problems of industrial medicine are required.

290 Research

The Department is exceptionally well equipped for research in industrial toxicology, medical physics, tracer chemistry, biological effects of radiation, and related fields.

*Does not include related courses in pharmacology, such as Pharmacology 211 and Toxicology (Pharmacology 211). The Radiological Physics curriculum also includes Radiation Biology 241 and 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.