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Nota di contenuto	Cover -- Half Title -- Title Page -- Copyright Page -- Table of Contents -- Preface -- 1: Introduction to Problem Solving and Maple -- 1.1 Problem Solving -- 1.2 Introduction to Maple -- 1.3 The Structure of Maple -- 1.4 General Introduction to Maple -- 1.5 Maple Training -- 1.6 Maple Applications Center -- 2: Introduction, Basic Concepts, and Techniques in Problem Solving with First-Order, Ordinary Differential Equations -- 2.1 Introduction -- 2.2 Applied First-Order Differential Equations and Solution Methods -- 2.3 Slope Fields and Qualitative Assessments -- 2.4 Analytical Solution of First-Order Ordinary Differential Equations -- 2.5 First-Order Ordinary Differential Equations and Maple -- 2.6 Numerical Methods for First-Order Ordinary Differential Equations -- 3: Introduction, Basic Concepts, and Techniques in Problem Solving with Systems of Ordinary Differential Equations -- 3.1 Systems of Differential Equations -- 3.2 Applied Systems of Differential Equations -- 3.3 Phase Portraits and Qualitative Assessment -- 3.4 Solving Homogeneous and Nonhomogeneous Systems of ODEs -- 3.5 Numerical Solutions to Systems of Ordinary Differential Equations -- 4: Problem Solving with Linear, Integer, and Mixed Integer Programming -- 4.1 Formulating Linear Programming

Problems -- 4.2 Understanding Two-Variable Linear Programming: A Graphical Simplex -- 4.3 Solving the Linear Program: The Simplex Method and Maple -- 4.4 Linear Programming with Maple's Commands -- 4.5 Sensitivity Analysis with Maple -- 4.6 Integer and Mixed Integer Problems with Maple -- 5: Model Fitting and Linear Regression -- 5.1 Introduction -- 5.2 The Different Curve Fitting Criterion -- 5.3 Plotting the Residuals for a Least-Squares Fit -- 5.4 Case Studies -- 6: Statistical and Probabilistic Problem Solving with Maple -- 6.1 Introduction -- 6.2 Basic Statistics: Univariate Data. 6.3 Introduction to Classical Probability -- 6.4 Reliability in Engineering and Business -- 6.5 Case Study: Airlines Overbooking Model -- 6.6 Continuous Probability Models -- 6.7 The Normal Distribution -- 6.8 Confidence Intervals and Hypothesis Testing -- 7: Problem Solving with Simulation -- 7.1 Introduction -- 7.2 Monte Carlo Simulation -- 7.3 Probability and Monte Carlo Simulation Using Deterministic Behavior -- 7.4 Probability and Monte Carlo Simulation Using Probabilistic Behavior -- 7.5 Case Studies: Applied Simulation Models -- Index.

Sommario/riassunto

Problem Solving is essential to solve real-world problems. Advanced Problem Solving with Maple: A First Course applies the mathematical modeling process by formulating, building, solving, analyzing, and criticizing mathematical models. It is intended for a course introducing students to mathematical topics they will revisit within their further studies. The authors present mathematical modeling and problem-solving topics using Maple as the computer algebra system for mathematical explorations, as well as obtaining plots that help readers perform analyses. The book presents cogent applications that demonstrate an effective use of Maple, provide discussions of the results obtained using Maple, and stimulate thought and analysis of additional applications. Highlights: The book's real-world case studies prepare the student for modeling applications Bridges the study of topics and applications to various fields of mathematics, science, and engineering Features a flexible format and tiered approach offers courses for students at various levels The book can be used for students with only algebra or calculus behind them About the authors: Dr. William P. Fox is an emeritus professor in the Department of Defense Analysis at the Naval Postgraduate School. Currently, he is an adjunct professor, Department of Mathematics, the College of William and Mary. He received his Ph.D. at Clemson University and has many publications and scholarly activities including twenty books and over one hundred and fifty journal articles. William C. Bauldry, Prof. Emeritus and Adjunct Research Prof. of Mathematics at Appalachian State University, received his PhD in Approximation Theory from Ohio State. He has published many papers on pedagogy and technology, often using Maple, and has been the PI of several NSF-funded projects incorporating technology and modeling into math courses. He currently serves as Associate Director of COMAP's Math Contest in Modeling (MCM).

2. Record Nr.	UNINA9911131905203321
Titolo	Nicotine addiction : prevention, health effects and treatment options / / Giuseppe Di Giovanni, editor
Pubbl/distr/stampa	[Hauppauge] N.Y., : Nova Science Publishers, Inc., 2012
ISBN	1-62081-344-0
Edizione	[1st ed.]
Descrizione fisica	1 online resource (295 p.)
Collana	Substance abuse assessment, interventions and treatment
Altri autori (Persone)	Di GiovanniGiuseppe
Disciplina	616.86/5
Soggetti	Nicotine addiction - Prevention Nicotine addiction - Treatment
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
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Nota di contenuto	Intro -- Contents -- Preface -- Chapter 1 -- Nicotine Addiction and Treatment: Recent Advances -- Abstract -- Introduction -- Nicotine Addiction -- Involvement of Nicotinic Acetylcholine Receptors -- Involvement of Neurotransmitters -- Dopamine -- Glutamate -- GABA -- Endocannabinoid System -- Endogenous Opioid System -- 5-HT -- Norepinephrine -- Involvement of Monoamine Oxidase -- Neuronal Function -- Health Effects -- Prevention -- Therapeutic Option -- Nicotine Therapy -- Non-Nicotine Therapy -- Bupropion -- Varenicline -- Nicotine Vaccine -- Research Advances -- Conclusion -- Acknowledgment -- References -- Chapter 2 -- Serotonin-Dopamine Interaction in Nicotine Addiction: Focus on 5-HT _{2C} Receptors -- Abstract -- Introduction -- Dopamine Systems -- Serotonin Systems -- 5-HT Receptors Localization -- The 5-HT ₂ Receptor Family -- Effects of Nicotine on Central Dopaminergic Function -- Effects of Nicotine on Central Serotonergic Function -- Serotonin 2C (5-HT _{2C}) and Nicotine Rewarding Properties -- Serotonergic Drug Treatment for Smoking Cessation -- Conclusion -- Acknowledgments -- References -- Chapter 3 -- Defining the Role of the Hippocampus in Nicotine Addiction -- Abstract -- Introduction -- Canonical View of Reward and Addiction -- Connectivity between the Hippocampus and the Reward Circuitry -- Nicotine-Associated Contexts and Cues -- Hippocampal Nicotinic Acetylcholine Receptors, Plasticity and Addiction -- Hippocampus, Stress and Withdrawal -- Towards a Hippocampus Model

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Sommario/riassunto

Smoking tobacco presents serious social problems with major impacts on public health. It is estimated that 25-30% of the general population in western countries are currently smoking. Tobacco use is the major preventable cause of death in the United States, responsible for more than 400,000 deaths annually. Within the USA and Europe, 70% of all smokers have tried to quit smoking at least once, but only about 6% of these succeeded in maintaining abstinence. This book covers the latest nicotine-related research. The selection of chapters has a certain unity as physiologic, pathologic and psychological themes run through the book and supply the logical connections between the various authors. This work is intended as a contribution to the reversal of the current tobacco epidemic and thereby to preventing many of the deaths attributable to tobacco predicted in this century.
