Updated - 4/9/2020

**Case Studies by Geha & Notarangelo (6th & 7th ed.)**
**Medical Immunology (MCDB W 138) Summer Session B (2020)**

**Instructor:** Duane Sears (duanesears@ucsb.edu)  **Office:** LSB Rm. 1111  **TAs:** TBA

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**Note:** MIDTERMS 1 & 2 will be given during WEEKS 3 & 5 but the EXACT DAYS and TIMES are not yet set.

### (Wk) Day Date  Lec # Lecture Title & Reading – Case #’s are black if the same in both editions. Blue case # only 7th ed. Red case # only 6th ed.

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#### (1) M  AUG 3  Introductory Videos:  
**INT-A** Course Introduction  
**INT-B** Immune Organs  
**INT-C** Flow Cytometry and FACS  
(1) - DW Sears. Technology Focus 1 - Flow Cytometry and Fluorescence Activated Cell Sorting

| T | 4 | L01 - Overview of the of Vertebrate Immune System  
Introductory Video:  
**INT-D** Immune Cells |
| W | 5 | L02 - Polarized Activation and Effector Functions of CD4 T Cells  
GN Case #46 (#48) - Lepromatous Leprosy  
| R | 6 | L03 - Cross-regulation of Innate and Adaptive Immunity  
Introductory Video:  
**INT-E** MHC Genes, Proteins, & Diversity  
GN Case #9 - DiGeorge Syndrome  
| F | 7 | L04 - Severe Combined Immune Deficiencies (SCIDs)  
GN Case #5 - X-linked Severe Combined Immunodeficiency (X-Linked SCID)  
Case #6 - Adenosine Deaminase (ADA) Deficiency  
Case #11 - Graft-versus-Host Disease (GVHD) |

#### (2) M  AUG 10  SCIDs Caused by Defective T and B Lymphocyte Maturation  
GN Case #7 - Omenn Syndrome (OS)  
Case #8 - MHC Class II Deficiency or so-called Bare Lymphocyte Syndrome Type II (BLS II)  
| T | 11 | L06 - SCIDs Caused by Defective T and B Lymphocyte Activation  
GN Case #2 - CD40 Ligand Deficiency, or X-Linked Hyper IgM (XHIGM) Syndrome 1  
Case #16 - Wiskott-Aldrich Syndrome (WAS) |
| W | 12 | L07 - Severe Immune Deficiencies Caused by Defective B Lymphocyte Maturation  
GN Case #1 - X-Linked Agammaglobulinemia (XLA)  
Case #3 - Activation-Induced Cytidine Deaminase (AID) Deficiency |
| R | 13 | L08 - Modern Anti-Cancer Immunotherapies  
- Checkpoint blocking antibodies, anti-tumor antibodies and anti-tumor vaccines.  
| F | 14 | L09 - Gene Defects Impairing Innate Mechanisms of Anti-microbial Immunity  
GN Case #23 - X-Linked Lymphoproliferative Dyshplasia (LXHD) and Immunodeficiency  
Case #28 - recurrent Herpes Simplex Encephalitis (HSE)  
Case #29 - Interleukin 1 Receptor-Associated Kinase 4 (IRAK4) Deficiency  

#### (3) MIDTERM 1 WEEK 3 (TBA) ON CAMPUS: Reserve a computer lab seat. OFF CAMPUS: Pre-register with ProctorU.

| T | 18 | L10 - Gene Defects Impairing CTL and NK Lymphocyte Anti-viral Immunity  
GN Case #12 - MHC Class I Deficiency or Bare Lymphocyte Syndrome Type 1 (BLS I)  
Case #14 - Hemophagocytic Lymphohistiocytosis  
Case #24 - Interferon-γ Receptor Deficiency |
| W | 19 | L11 - Complement Component Defects Impairing Anti-microbial Immunity  
GN Case #31 - Hereditary Angioedema  
Case #32 - Factor I Deficiency  
(This case is NOT in the 7th ed.)  
Case #32 (#33) - Deficiency of the C8 Complement Component |
| R | 20 | L12 – Immune Pathology Arising from Defective Leukocyte Functions  
GN Case #26 - Chronic Granulomatous Disease (CGD)  
Case #27 - Leukocyte Adhesion Deficiency (LAD) |
| F | 21 | L13 - Anti-Viral Vaccines Eliciting Broadly Neutralizing Antibodies  
GN Case #10 - Acquired Immune Deficiency Syndrome (AIDS)  
<table>
<thead>
<tr>
<th>(Wk)</th>
<th>Day</th>
<th>Date</th>
<th>Lec #</th>
<th>Lecture Title and Reading</th>
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</table>
| 4    | M   | 24   | L14   | Autoimmune Pathology Resulting from Impaired T Cell Regulation  
GN Case #17 - Autoimmune Polyclonopathy-Candidiasis-Ectodermal Dystrophy (APECED)  
Case #18 - Immune Dysregulation, Polyclonopathy, Enteropathy X-linked (IPEX) Disease  
Case #19 - Autoimmune Lymphoproliferative Syndrome (ALPS)  
Ref (17) - DW Sears. T Regulatory Cell Focus - History and Introduction to T Regulatory Cells |
| T    | 25  | L15  | Autoimmune Pathology Arising from Aberrant T Cell Activation  
GN Case #38 (#40) - Multiple Sclerosis (MS)  
Case #42 (#44) - Celiac Disease  
| W    | 26  | L16  | Autoimmune Pathology Arising from Aberrant B Cell Activation  
GN Case #35 (#36) - Rheumatoid Arthritis (RA)  
Case #36 (#37) - Systemic Lupus Erythematosus (SLE)  
Case #40 (#42) - Myasthenia Gravis  
Case #41 (#43) - Pemphigus Vulgaris |
| R    | 27  | L17  | Immune Pathology Arising from Hyperactive T Cells  
GN Case #37 (#39) - Crohn's Disease  
Case #45 (#47) - Toxic Shock Syndrome (TSS)  
Case #53 (#49) - Contact Sensitivity to Poison Ivy |
| F    | 28  | Exam review: Time and campus location, TBA |
| 5    | MIDTERM 2 WEEK 5 (TBA) ON CAMPUS: Reserve a seat in a computer lab. OFF CAMPUS: Pre-register with ProctorU. |
| T    | Sept 1 | L18  | Immune Pathology Arising from Hyper IgE Production  
GN Case #20 - Hyper IgE Syndrome (HIES)  
Case #49 - Acute Systemic Anaphylaxis (This case is NOT in the 7th ed.)  
Case #47 (#50) - Allergic Asthma  
Case #51 - Atopic Dermatitis (This case is NOT in the 7th ed.) |
| W    | 2   | L19  | Immune Pathology Arising from Dysregulated Proinflammatory Responses  
GN Case #33 (#34) - Hereditary Periodic Fever Syndromes |
| R    | 3   | L20A | The Hygiene Hypothesis  
(28-29) Optional reading listed on the next page includes additional recent interesting articles on these topics.  
L20B - Epithelial Surface Immunity  
| F    | 4   | L20C | Immunity and Disease Shaped by the Host Microbiota  
(24) - T Gensollen et al. How colonization by microbiota in early life shapes the immune... Science 352:539-44 (2016)  
| 6    | M   | 7   | LABOR DAY |
| T    | 8   | L20D | Autoimmune Predisposition Linked to Human Microbiota Diversity  
(30-32) Optional reading listed on the next page includes additional recent interesting articles on these topics.  
L20E - Calibration of Immune Self/Nonself Discrimination by Host Microbiota: Course Recap and Coda |
| W    | 9   | No Lecture. Exam review: Time and campus location, TBA |
| R    | 10  | No Lecture. |
| F    | 11  | FINAL, FRI, Sep 11 ON CAMPUS: Reserve a seat in a computer lab. OFF CAMPUS: Pre-register with ProctorU. |

Exams

<table>
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<tr>
<th>Exams</th>
<th>(Times)</th>
<th>400 points</th>
<th>Dates</th>
<th>Exam start TBA</th>
<th>Locations</th>
<th>Pre-Exam Review Times and Locations</th>
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<tbody>
<tr>
<td>Midterm 1</td>
<td>(90 min)</td>
<td>100 points</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
<td>Friday, August 14 TBA</td>
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<tr>
<td>Midterm 2</td>
<td>(90 min)</td>
<td>100 points</td>
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<tr>
<td>Final Exam</td>
<td>(180 min)</td>
<td>200 points</td>
<td>Friday, September 11 10:30 am &amp; 1:30 pm</td>
<td>TBA</td>
<td>TBA</td>
<td>Wednesday, Sept. 9 TBA</td>
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See Gauchospace for additional information about the times and locations of the weekly discussion and review sessions hosted by the instructors.

Required Textbook: "Case Studies in Immunology" by R. Geha and L. Notarangelo (GN), Edition 6 (2012) or Edition 7 (2016), published by Garland Science. Both editions are acceptable but avoid other editions because the cases are not similarly numbered and some of the cases on this syllabus are either missing or different in other editions.
Reading References

Assigned Reading

(1) D. W. Sears. Technology Focus 1 - Flow Cytometry and Fluorescence Activated Cell Sorting (GS, Wk0)
(2) D. W. Sears. Technology Focus 2 - CD antigen designsations (GS, Wk0)
(17) D. W. Sears. T Regulatory Cell Focus - History and Introduction to T Regulatory Cells

Optional Reading (but no less interesting).