

ECE 3030 Spring 2025 HW3 Hints

1. $1 - f(E)$ is unoccupied probability.
2. Lecture 9, slides 7 and 8 for (a) and (c). Lecture 9, slide 9 for (e).
3. Lecture 9, slide 9 for (a) and (b). For (d) & (e), slides 10, 7 & 8. $N_C \rightarrow N_C ((T/300)^3$
Also, $((T/300)^3$ in exponent.
4. Use Lecture 9, slide 9 to calculate n_0 .
5. Discuss band curvature vs effective mass and mobility.
6. Solve for σ , then μ , v , and I .

Bonus. Lecture 9, slide 10.