TB3 Supersymmetry: Contents and literature

	reading material
I. Preliminaries	
1. Coleman Mandula theorem	$[1]_{(1.1)}$
2. Susy QM	$[1]_{(1.2)}[2]_{(2.-4.)}$
II. Supersymmetry representations	
1. Lorentz reps, spinors	$[3]_{(2.)}[1]_{(1.3)}$
2. SL(2,C) spinor notation	$[3]_{(2.)}[2]_{(5.)}$
3. Poincare and susy reps	$[3]_{(3.)}[1]_{(1.4)}$
III. 4d supersymmetric actions	
1. Wess-Zumino model	$[4]_{(I.)}$
2. 4d superspace and superfields	$[3]_{(4.)}[2]_{(6.)}([1]_{(1.5)})$
3. N=1 supersymmetric gauge theory	$[3]_{(5.)}[1]_{(1.7-8)}$
IV. Low energy dynamics for minimal supersymmetry	
1. Perturbative vacua and spontaneous susy breaking	$[3]_{(6.)}[1]_{(1.6.3f,1.7.4ff)}$
2. Effective Theories	$[1]_{(2.1)}$
3. Effective superpotential for chiral superfields	$[1]_{(2.2)}$
4. Effective action for gauge theories	$[1]_{(2.3)}$
V. Quantum vacua for $\mathcal{N} = 1$ SQCD	$[1]_{(3.)}$
1. Qualitative phases of gauge theories	$[1]_{(2.3)}$
2. Pure gauge theory	$[1]_{(2.3)}$
3. $SU(N)$ with $N_F < N_C$ fundamentals	$[1]_{(3.1,2)}$
4. $SU(N)$ with $N_F \geq N_C$ fundamentals	$[1]_{(3.1,3,4)}$
VI. $\mathcal{N} = 2$ SYM	$[1]_{(4.)}$

Further reading:

Witten index: [5], Effective field theories: [6, 7, 8]
$N = 1$ Susy: [9, 10, 11], $N = 2$ Susy: [12, 13], Selection of research papers: [14, 15, 16, 17]

References

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[4] J. M. Figueroa-O'Farrill, *Busstepp lectures on supersymmetry*, hep-th/0109172.

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